

**HIGH-INTEREST**

# **MATH COMPUTATION**

## **SKILLS & STRATEGIES**

Operations

Fractions and  
Decimals

Whole Numbers

Perimeter  
and Area

Regrouping

Solving Word  
Problems

Money

Measurement

LEVEL

**8**

**100 PLUS+ REPRODUCIBLE ACTIVITIES**





# **MATH COMPUTATION**

## **SKILLS & STRATEGIES**

LEVEL  
**8**

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# About This Series

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This series was created by Saddleback Educational Publishing to provide extensive math practice as a supplement to in-class instruction. Math Computation Skills and Strategies can easily be integrated into math curricula to reinforce basic skills. The lessons focus on practice, with up to 70 items a page. In addition, the lessons are designed to challenge students as their skills grow stronger. As the students progress through the individual lessons, the degree of difficulty increases.

Closely adhering to state standards, this series provides grade-level appropriate lessons that are approachable for students at a range of abilities. Review lessons are interspersed throughout the book to allow students to reinforce their skills. Furthermore, the Scope and Sequence chart at the back of the book will help you choose lessons that are applicable to your curriculum. This series covers a range of topics, allowing students to build skills in multiple areas. Additionally, the lessons provide a variety of approaches, including word problems that emulate real-life situations.

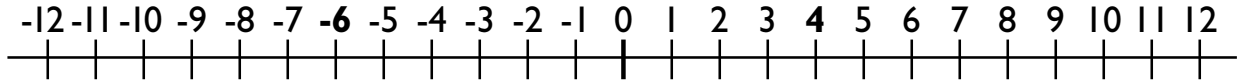
Each book is designed to challenge students who are learning skills at the corresponding grade level. However, the lessons were created not just for younger children, but for students of all ages.

Saddleback Educational Publishing believes in allowing students to strengthen their skills with fun and exciting practice lessons. We hope you enjoy using this series to supplement class instruction and help students gain skills for proficiency in math computation.

# Absolute Values



Positive and negative numbers are integers. To find the value of an integer, find its distance from zero.



The absolute value of  $-6$  is 6, or  $|-6| = 6$       The absolute value of  $+4$  is 4, or  $|+4| = 4$

**Directions:** What is the absolute value of the integer?

- | a            | b         | c         | d         | e         |
|--------------|-----------|-----------|-----------|-----------|
| 1. $ +3  =$  | $ -5  =$  | $ +7  =$  | $ -10  =$ | $ +9  =$  |
| 2. $ -9  =$  | $ +16  =$ | $ -1  =$  | $ +8  =$  | $ -15  =$ |
| 3. $ +15  =$ | $ -20  =$ | $ +2  =$  | $ -6  =$  | $ +13  =$ |
| 4. $ -4  =$  | $ +35  =$ | $ -17  =$ | $ +19  =$ | $ -4  =$  |

**Directions:** Circle the number that has the greater absolute value.

- | a                 | b                | c                |
|-------------------|------------------|------------------|
| 5. $-5$ or $-7$   | $+8$ or $-3$     | $+175$ or $+168$ |
| 6. $+15$ or $+20$ | $+2$ or $-6$     | $-8$ or $-6$     |
| 7. $-6$ or $+2$   | $0$ or $-9$      | $+302$ or $+300$ |
| 8. $+83$ or $+81$ | $+201$ or $-202$ | $-1$ or $+1$     |
| 9. $-3$ or $-5$   | $-403$ or $-370$ | $+706$ or $+689$ |

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# Add and Subtract Integers



*When you add or subtract integers, pay close attention to whether they are positive or negative.*

When you add negative integers, the sum is negative.

When you add integers with different signs, subtract the integer with the smaller absolute value from the integer with the larger absolute value.

When you subtract integers, change the sign of the second integer, then add.

**Directions:** Find the sum or difference.

**a**

1.  $-129 + -75 =$

2.  $+151 + -3,000 =$

3.  $-25 + +4,367 =$

4.  $-8,150 + +3,155 =$

5.  $+302 - -193 =$

6.  $-263 + +1,895 =$

**b**

$-8 + +5,680 =$

$+123 - +61 =$

$-411 + -260 =$

$+157 + -192 =$

$-38 - +257 =$

$+47 - -14 =$

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# Order Integers



*Remember, a positive integer is always greater than a negative integer.  
The greater the absolute value of a negative integer, the smaller it is.*

**Directions:** Order these integers from least to greatest.

a

b

1.  $+20, -18, +22, -16$  \_\_\_\_\_  $-50, -48, -52, -49$  \_\_\_\_\_
2.  $-32, -19, +16, +12$  \_\_\_\_\_  $+20, -51, -53, -52$  \_\_\_\_\_
3.  $+73, -25, -30, +65$  \_\_\_\_\_  $-16, +63, +74, -13$  \_\_\_\_\_
4.  $0, -5, -1, -4$  \_\_\_\_\_  $+35, +12, +48, 0$  \_\_\_\_\_
5.  $+69, +75, -92, -85$  \_\_\_\_\_  $-42, -40, -45, -43$  \_\_\_\_\_
6.  $-55, -53, +61, +54$  \_\_\_\_\_  $+58, +25, +68, +30$  \_\_\_\_\_
7.  $+100, -100, +70, -70$  \_\_\_\_\_  $-61, -59, -66, -52$  \_\_\_\_\_
8.  $-83, -79, -88, -74$  \_\_\_\_\_  $+76, -8, -20, -15$  \_\_\_\_\_
9.  $+260, +360, -29, -27$  \_\_\_\_\_  $-83, +35, -76, +22$  \_\_\_\_\_
10.  $-46, +15, -44, +10$  \_\_\_\_\_  $+98, -30, -21, -4$  \_\_\_\_\_
11.  $+93, -1, -6, +97$  \_\_\_\_\_  $-77, 0, -73, -75$  \_\_\_\_\_

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# Order Integers



*Remember what you just learned about integers. The distance of an integer from zero, as well as its sign, is important in determining its value.*

**Directions: Circle the greater integer.**

**a**

**b**

**c**

1.  $-7, +4$

$+37, +27$

$-100, -105$

2.  $+10, -15$

$-70, -75$

$+71, -75$

3.  $-20, -25$

$+5, -10$

$-110, -115$

4.  $+43, +41$

$-90, -85$

$+48, +44$

**Directions: Order the integers from greatest to least.**

**a**

**b**

5.  $-7, -3, -10, -5$  \_\_\_\_\_

$+72, +68, +84, +75$  \_\_\_\_\_

6.  $+12, 0, +18, +16$  \_\_\_\_\_

$-40, -60, 0, -30$  \_\_\_\_\_

7.  $-9, -17, -8, -11$  \_\_\_\_\_

$+92, +94, +93, +91$  \_\_\_\_\_

8.  $+25, -25, 0, -18$  \_\_\_\_\_

$-45, +45, -28, +28$  \_\_\_\_\_

**Directions: Fill in a missing numeral to make the number sentence true.**

**a**

**b**

**c**

9.  $-978 < -9 \square 8$

$+623 > +62 \square$

$-17 > - \square 7$

10.  $+1,347 > +1, \square 47$

$- \square 29 < -329$

$+602 < +6 \square 2$

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# Round Integers



*To round integers, look one digit to the right of the place you are rounding to.*

If the digit is 4 or less, round down. If it is 5 or more, round up.

1,367 to the nearest ten is 1,370.

28,349 to the nearest hundred is 28,300.

**Directions: Round the integer to the nearest ten.**

- |    | <b>a</b> | <b>b</b>   | <b>c</b>   |
|----|----------|------------|------------|
| 1. | $-92$    | $-12,695$  | $+146,242$ |
| 2. | $+168$   | $-83,256$  | $+17,588$  |
| 3. | $-2,341$ | $+328,121$ | $-54$      |
| 4. | $+35$    | $-83$      | $+568$     |
| 5. | $-489$   | $+997$     | $-2,923$   |
| 6. | $+5,672$ | $-7,449$   | $+38,132$  |

**Directions: Round the integer to the nearest hundred.**

- |     | <b>a</b>  | <b>b</b>   | <b>c</b>   |
|-----|-----------|------------|------------|
| 7.  | $+1,429$  | $+123,845$ | $-236$     |
| 8.  | $-387$    | $+94,138$  | $+9,781$   |
| 9.  | $+550$    | $-6,125$   | $-69,420$  |
| 10. | $-21,675$ | $+557$     | $+329,375$ |

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# Round Integers



*The rules for rounding integers are the same as for rounding whole numbers.*

**Directions:** Are these integers rounded to the nearest thousand?  
Write **Y** for yes or **N** for no.

a

b

1.  $+2,684 \rightarrow +3,000$  \_\_\_\_\_

$-1,883 \rightarrow -1,000$  \_\_\_\_\_

2.  $-13,792 \rightarrow -13,000$  \_\_\_\_\_

$+31,248 \rightarrow +31,000$  \_\_\_\_\_

3.  $+384,885 \rightarrow +385,000$  \_\_\_\_\_

$-5,555 \rightarrow -5,000$  \_\_\_\_\_

4.  $-4,591 \rightarrow -4,050$  \_\_\_\_\_

$+4,936 \rightarrow +4,900$  \_\_\_\_\_

5.  $+15,162 \rightarrow +15,200$  \_\_\_\_\_

$-72,439 \rightarrow -73,000$  \_\_\_\_\_

6.  $-234,277 \rightarrow -234,000$  \_\_\_\_\_

$+6,150 \rightarrow +6,000$  \_\_\_\_\_

**Directions:** These numbers have been rounded to the nearest ten.  
Write a number that may have been the original number.

a

b

c

7. 70 \_\_\_\_\_

560 \_\_\_\_\_

1,390 \_\_\_\_\_

8. 430 \_\_\_\_\_

7,770 \_\_\_\_\_

30 \_\_\_\_\_

9. 2,410 \_\_\_\_\_

29,210 \_\_\_\_\_

100 \_\_\_\_\_

10. 36,590 \_\_\_\_\_

80 \_\_\_\_\_

1,110 \_\_\_\_\_

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# Use Exponents



*Exponents show how many times a number, known as the base, is multiplied by itself.*

$$64 = 4 \times 4 \times 4.$$

This is written as  $4^3$ , which can be read “four to the third power.”

**Directions: Write in exponent form.**

- |    | a             | b            | c            | d            |
|----|---------------|--------------|--------------|--------------|
| 1. | 8 _____       | 729 _____    | 27,000 _____ | 361 _____    |
| 2. | 512 _____     | 27 _____     | 1,331 _____  | 125 _____    |
| 3. | 125,000 _____ | 64,000 _____ | 125 _____    | 24,389 _____ |
| 4. | 6,561 _____   | 64 _____     | 343 _____    | 216 _____    |

**Directions: Compare by writing  $<$ ,  $>$ , or  $=$ .**

- |    | a                  | b                     | c                  | d                  |
|----|--------------------|-----------------------|--------------------|--------------------|
| 5. | $2^3 \bigcirc 3^2$ | $4^3 \bigcirc 3^4$    | $3^1 \bigcirc 1^3$ | $6^2 \bigcirc 2^6$ |
| 6. | $5^4 \bigcirc 4^5$ | $2^5 \bigcirc 5^2$    | $7^2 \bigcirc 4^4$ | $9^2 \bigcirc 2^9$ |
| 7. | $8^2 \bigcirc 3^4$ | $4^4 \bigcirc 3^{10}$ | $2^5 \bigcirc 5^3$ | $3^3 \bigcirc 5^1$ |
| 8. | $8^4 \bigcirc 9^3$ | $3^5 \bigcirc 2^7$    | $1^4 \bigcirc 4^1$ | $4^2 \bigcirc 3^3$ |

**Directions: Write the number in standard form.**

- |     | a           | b           | c           | d           |
|-----|-------------|-------------|-------------|-------------|
| 9.  | $4^3$ _____ | $5^2$ _____ | $6^4$ _____ | $3^3$ _____ |
| 10. | $7^2$ _____ | $8^3$ _____ | $2^5$ _____ | $9^2$ _____ |

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# Identify Powers of Ten



*In numbers with ten as the base, the exponent shows how many zeros will follow the 1.*

$$10^3 = 1,000.$$

**Directions: Find the value.**

- |    | a               | b               | c            |
|----|-----------------|-----------------|--------------|
| 1. | $10^2$ _____    | $10^8$ _____    | $10^5$ _____ |
| 2. | $10^7$ _____    | $10^3$ _____    | $10^1$ _____ |
| 3. | $10^{10}$ _____ | $10^9$ _____    | $10^4$ _____ |
| 4. | $10^0$ _____    | $10^{11}$ _____ | $10^6$ _____ |

**Directions: Compare by writing <, >, or =.**

- |    | a                   | b                    | c                    |
|----|---------------------|----------------------|----------------------|
| 5. | $10^1 \bigcirc 3^2$ | $10^2 \bigcirc 9^3$  | $10^3 \bigcirc 4^4$  |
| 6. | $10^5 \bigcirc 8^6$ | $10^6 \bigcirc 12^4$ | $10^7 \bigcirc 14^4$ |
| 7. | $10^2 \bigcirc 7^3$ | $10^3 \bigcirc 8^5$  | $10^4 \bigcirc 30^3$ |
| 8. | $10^6 \bigcirc 6^8$ | $10^7 \bigcirc 20^3$ | $10^1 \bigcirc 3^3$  |

**Directions: Write in exponent form.**

- |     | a                 | b                     | c                    |
|-----|-------------------|-----------------------|----------------------|
| 9.  | 1,000 _____       | 10,000,000 _____      | 10,000,000,000 _____ |
| 10. | 1,000,000 _____   | 100 _____             | 100,000 _____        |
| 11. | 100,000,000 _____ | 100,000,000,000 _____ | 10,000 _____         |

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# Operations Using Exponents



*Numbers with exponents must be changed to standard form before they can be added or subtracted.*

$$7^2 + 3^3 = 49 + 27 = 76 \quad 8^2 - 2^4 = 64 - 16 = 48$$

**Directions:** Find the sum or difference.

**a**

1.  $2^2 + 5^3 + 6^2 =$

2.  $9^3 - 5^3 =$

3.  $10^5 - 10^4 =$

4.  $7^4 - 4^2 =$

5.  $15^2 + 9^3 + 1^4 =$

6.  $8^3 - 2^5 =$

7.  $30^2 - 6^3 =$

8.  $9^2 - 3^4 =$

**b**

$4^3 - 2^3 =$

$3^2 + 8^4 + 7^2 =$

$2^3 - 2^2 =$

$4^3 + 5^2 + 8^3 =$

$3^4 - 2^5 =$

$17^2 + 5^3 + 10^3 =$

$4^5 - 4^3 =$

$12^3 + 11^2 + 7^3 =$

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# Find Square Roots



The square root of 16 is 4. This may be written as  $\sqrt{16} = 4$ , or  $4^2 = 16$ .

**Directions:** Find the square root of the number.

a	b	c	d
1. $\sqrt{25}$	$\sqrt{9}$	$\sqrt{256}$	$\sqrt{81}$
2. $\sqrt{100}$	$\sqrt{36}$	$\sqrt{900}$	$\sqrt{289}$
3. $\sqrt{361}$	$\sqrt{400}$	$\sqrt{49}$	$\sqrt{324}$
4. $\sqrt{144}$	$\sqrt{169}$	$\sqrt{1,600}$	$\sqrt{64}$
5. $\sqrt{4}$	$\sqrt{121}$	$\sqrt{225}$	$\sqrt{625}$

**Directions:** Is the statement true or false? Write **T** for true and **F** for false.

a	b	c
6. $\sqrt{5} < 2$ _____	$\sqrt{17} > 4$ _____	$5 > \sqrt{20}$ _____
7. $6 > \sqrt{40}$ _____	$\sqrt{50} < 7$ _____	$22 < \sqrt{400}$ _____
8. $\sqrt{121} < 12$ _____	$9 < \sqrt{90}$ _____	$5 > \sqrt{16}$ _____
9. $10 < \sqrt{110}$ _____	$\sqrt{361} > 21$ _____	$8 < \sqrt{49}$ _____
10. $\sqrt{169} > 15$ _____	$6 < \sqrt{25}$ _____	$50 > \sqrt{1,600}$ _____
11. $16 < \sqrt{200}$ _____	$\sqrt{9} < 4$ _____	$\sqrt{80} < 8$ _____
12. $\sqrt{289} > 18$ _____	$9 > \sqrt{64}$ _____	$\sqrt{65} > 7$ _____

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# Non-Terminating Decimals



A non-terminating decimal is a decimal that never ends.

$$\frac{5}{7} = 0.7142857...$$

Some decimals terminate:  $\frac{1}{10} = 0.1$

Other decimals repeat:  $\frac{2}{6} = 0.333333.....$

**Directions:** Label each terminating decimal (*T*), repeating decimal (*R*), non-terminating decimal (*N*), and whole number (*W*).

- |    | a                    | b                     | c                    |
|----|----------------------|-----------------------|----------------------|
| 1. | $\sqrt{17}$ _____    | $\frac{7}{25}$ _____  | $\sqrt{361}$ _____   |
| 2. | $\frac{1}{5}$ _____  | $\sqrt{19}$ _____     | $\sqrt{248}$ _____   |
| 3. | $\sqrt{25}$ _____    | $\frac{1}{16}$ _____  | $\frac{3}{14}$ _____ |
| 4. | $\frac{1}{9}$ _____  | $\sqrt{121}$ _____    | $\sqrt{484}$ _____   |
| 5. | $\sqrt{43}$ _____    | $\frac{3}{27}$ _____  | $\sqrt{360}$ _____   |
| 6. | $\frac{1}{8}$ _____  | $\frac{10}{17}$ _____ | $\sqrt{400}$ _____   |
| 7. | $\sqrt{49}$ _____    | $\sqrt{144}$ _____    | $\frac{5}{31}$ _____ |
| 8. | $\frac{1}{13}$ _____ | $\frac{7}{9}$ _____   | $\frac{6}{12}$ _____ |
| 9. | $\sqrt{35}$ _____    | $\frac{11}{21}$ _____ | $\frac{1}{11}$ _____ |

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# Understand Irrational Numbers



Nonrepeating, nonterminating decimals that cannot be written as a fraction are irrational numbers. Terminating decimals are rational numbers.

$\sqrt{7} = 2.6457513\dots$  is irrational.

$\frac{1}{4} = 0.25$  is rational.

**Directions:** Write *R* for *rational* or *I* for *irrational* next to each number.

	a	b	c	d
1.	$\frac{2}{5}$ _____	$\sqrt{23}$ _____	$\frac{5}{8}$ _____	$\sqrt{80}$ _____
2.	$\sqrt{9}$ _____	$\frac{2}{7}$ _____	$\sqrt{31}$ _____	$\sqrt{196}$ _____
3.	$\frac{3}{9}$ _____	$\sqrt{81}$ _____	$\frac{3}{12}$ _____	$\frac{7}{9}$ _____
4.	$\sqrt{17}$ _____	$\sqrt{100}$ _____	$\sqrt{24}$ _____	$\sqrt{361}$ _____
5.	$\frac{4}{7}$ _____	$\frac{5}{9}$ _____	$\sqrt{36}$ _____	$\frac{1}{5}$ _____
6.	$\sqrt{25}$ _____	$\sqrt{21}$ _____	$\sqrt{42}$ _____	$\frac{6}{8}$ _____
7.	$\frac{1}{7}$ _____	$\frac{2}{6}$ _____	$\frac{7}{10}$ _____	$\sqrt{49}$ _____
8.	$\sqrt{400}$ _____	$\sqrt{289}$ _____	$\sqrt{324}$ _____	$\frac{6}{7}$ _____
9.	$\frac{7}{8}$ _____	$\frac{3}{8}$ _____	$\sqrt{34}$ _____	$\frac{1}{13}$ _____
10.	$\frac{3}{6}$ _____	$\frac{8}{10}$ _____	$\frac{3}{7}$ _____	$\sqrt{22}$ _____
11.	$\sqrt{169}$ _____	$\sqrt{27}$ _____	$\frac{2}{8}$ _____	$\frac{4}{11}$ _____

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# Find Ratios



*A ratio compares two numbers and may be expressed three different ways.*

If there are 20 blue marbles and 17 green marbles in a bag, the ratio of blue marbles to green marbles may be expressed as:

$$\frac{20}{17} \quad 20:17 \quad 20 \text{ to } 17$$

If two ratios are equal, they are in proportion.

$$\frac{3}{4} = \frac{12}{16}$$

**Directions:** Write an equivalent ratio.

	a	b	c	d
1.	$\frac{3}{5}$ _____	2:7 _____	6 to 8 _____	$\frac{4}{9}$ _____
2.	7:11 _____	3 to 5 _____	$\frac{1}{17}$ _____	2 to 12 _____
3.	8:12 _____	$\frac{2}{9}$ _____	16:19 _____	4:3 _____
4.	2 to 3 _____	3:8 _____	7 to 5 _____	$\frac{12}{17}$ _____
5.	4 to 10 _____	5:12 _____	$\frac{4}{5}$ _____	5 to 13 _____
6.	3:4 _____	7 to 10 _____	30:35 _____	6 to 4 _____
7.	$\frac{4}{5}$ _____	$\frac{8}{11}$ _____	15 to 40 _____	9:12 _____
8.	$\frac{3}{8}$ _____	1:2 _____	8 to 3 _____	$\frac{6}{7}$ _____
9.	2 to 13 _____	4:15 _____	$\frac{10}{11}$ _____	8:40 _____
10.	4:18 _____	2 to 21 _____	17:25 _____	2:1 _____

Name \_\_\_\_\_

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# Find Percentages



*Percent means per hundred. If you have 65 cents, you have 65% of a dollar.*

**Directions:** Find the percent of the number.

**a**

1. 30% of 60 =

2. 5% of 80 =

3. 35% of 300 =

4. 40% of 130 =

5. 55% of 500 =

6. 65% of 900 =

7. 10% of 150 =

8. 25% of 80 =

9. 80% of 1,400 =

10. 75% of 140 =

11. 90% of 70 =

12. 50% of 600 =

**b**

25% of 20 =

40% of 400 =

90% of 8 =

85% of 1,500 =

20% of 250 =

5% of 160 =

10% of 40 =

60% of 95 =

55% of 700 =

95% of 600 =

45% of 1,200 =

80% of 120 =

**c**

20% of 901 =

5% of 2,000 =

45% of 500 =

70% of 150 =

95% of 200 =

60% of 800 =

10% of 500 =

35% of 700 =

90% of 1,600 =

20% of 180 =

15% of 200 =

70% of 160 =

Name \_\_\_\_\_

Date \_\_\_\_\_

# Find Percentages



*It's time for some practice!*

**Directions:** Compare by writing  $<$ ,  $>$ , or  $=$ .

a

b

- |                                |                            |
|--------------------------------|----------------------------|
| 1. 40% of 50 ____ 50% of 40    | 60% of 30 ____ 50% of 40   |
| 2. 95% of 100 ____ 30% of 300  | 5% of 80 ____ 30% of 10    |
| 3. 45% of 60 ____ 40% of 80    | 50% of 200 ____ 40% of 300 |
| 4. 90% of 80 ____ 75% of 100   | 30% of 80 ____ 24% of 100  |
| 5. 50% of 40 ____ 60% of 30    | 60% of 90 ____ 55% of 100  |
| 6. 85% of 200 ____ 70% of 300  | 35% of 600 ____ 95% of 200 |
| 7. 55% of 300 ____ 40% of 350  | 65% of 200 ____ 40% of 400 |
| 8. 80% of 20 ____ 20% of 80    | 40% of 150 ____ 30% of 180 |
| 9. 60% of 30 ____ 30% of 60    | 70% of 60 ____ 80% of 70   |
| 10. 75% of 40 ____ 80% of 35   | 35% of 300 ____ 40% of 280 |
| 11. 65% of 400 ____ 55% of 500 | 75% of 120 ____ 70% of 130 |
| 12. 70% of 140 ____ 80% of 120 | 30% of 50 ____ 40% of 40   |

Name \_\_\_\_\_

Date \_\_\_\_\_

# Convert Decimals and Fractions



*You can convert a fraction to a decimal and a decimal to a fraction.*

To convert to a decimal, divide the numerator by the denominator.

$$\frac{3}{4} = 0.75$$

To convert to a fraction, find the place value of the last digit of the decimal.  
Make this the denominator of the fraction.

$$0.693 = \frac{693}{1000}$$

↙  
thousandths

**Directions:** Find an equivalent decimal or fraction.

	a	b	c	d
1.	$\frac{2}{5}$	0.50	$\frac{1}{10}$	$\frac{4}{20}$
2.	0.7	$\frac{3}{10}$	0.65	0.192
3.	$\frac{3}{6}$	0.6	$\frac{4}{8}$	$\frac{5}{25}$
4.	0.24	$\frac{8}{20}$	0.926	0.42
5.	$\frac{5}{20}$	$\frac{1}{5}$	$\frac{15}{30}$	$\frac{60}{80}$
6.	$\frac{3}{8}$	$\frac{30}{45}$	0.311	$\frac{45}{90}$

Name \_\_\_\_\_

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# Convert Decimals, Fractions, and Percents



Since percent means per hundred, you can write a percent as a decimal to the hundredths place, or as a fraction with a denominator of 100.

**Directions:** Are the decimals, percents, and fractions equivalent? If so, write **Y** for yes. If not, write the correct answer.

a

b

c

1.  $\frac{3}{4} = 75\%$  \_\_\_\_\_

$0.72 = \frac{26}{100}$  \_\_\_\_\_

$\frac{4}{5} = 0.8$  \_\_\_\_\_

2.  $0.6 = \frac{3}{5}$  \_\_\_\_\_

$\frac{4}{5} = 45\%$  \_\_\_\_\_

$0.62 = 62\%$  \_\_\_\_\_

3.  $50\% = \frac{1}{4}$  \_\_\_\_\_

$20\% = \frac{1}{5}$  \_\_\_\_\_

$65\% = \frac{12}{50}$  \_\_\_\_\_

4.  $\frac{1}{5} = 25\%$  \_\_\_\_\_

$0.35 = 35\%$  \_\_\_\_\_

$\frac{3}{20} = 15\%$  \_\_\_\_\_

5.  $0.2 = \frac{2}{10}$  \_\_\_\_\_

$\frac{1}{10} = 0.1$  \_\_\_\_\_

$0.4 = \frac{3}{5}$  \_\_\_\_\_

6.  $65\% = 0.065$  \_\_\_\_\_

$18\% = 0.09$  \_\_\_\_\_

$5\% = 0.5$  \_\_\_\_\_

7.  $\frac{3}{10} = 30\%$  \_\_\_\_\_

$0.55 = \frac{11}{50}$  \_\_\_\_\_

$\frac{4}{25} = 20\%$  \_\_\_\_\_

8.  $0.88 = 88\%$  \_\_\_\_\_

$\frac{5}{25} = 5\%$  \_\_\_\_\_

$0.9 = 90\%$  \_\_\_\_\_

9.  $45\% = \frac{7}{20}$  \_\_\_\_\_

$\frac{6}{10} = 0.60$  \_\_\_\_\_

$10\% = 0.1$  \_\_\_\_\_

10.  $\frac{3}{15} = 0.5$  \_\_\_\_\_

$80\% = \frac{4}{6}$  \_\_\_\_\_

$\frac{3}{50} = 0.06$  \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

# Convert Fractions, Decimals, and Percents



*Remember the procedures you have learned for converting fractions, decimals, and percents. Follow those steps and you'll do great!*

**Directions:** Make the following conversions. Write fractions in simplest form.

**a**

**b**

- |  |                                   |
|--|-----------------------------------|
| 1. 40% as a fraction _____             | 0.10 as a percent _____           |
| 2. $\frac{1}{5}$ as a percent _____    | 55% as a fraction _____           |
| 3. 21% as a decimal _____              | 16% as a fraction _____           |
| 4. 44% as a decimal _____              | $\frac{1}{8}$ as a decimal _____  |
| 5. 0.2 as a fraction _____             | $\frac{4}{5}$ as a percent _____  |
| 6. $\frac{7}{10}$ as a percent _____   | $\frac{3}{12}$ as a decimal _____ |
| 7. 0.93 as a percent _____             | 0.46 as a percent _____           |
| 8. 0.7 as a fraction _____             | 5% as a decimal _____             |
| 9. 45% as a fraction _____             | 60% as a fraction _____           |
| 10. $\frac{3}{100}$ as a decimal _____ | 0.3 as a percent _____            |

Name \_\_\_\_\_

Date \_\_\_\_\_



# Solve Word Problems



*When you solve word problems, make sure you understand the question being asked.*

**Directions: Solve. Show your work.**

1. Jeremy scored 85% on his last math test, which had 40 questions. How many questions did Jeremy get correct?
2. Which is larger  $\overline{58}$  or 43?
3. Write an equivalent fraction, decimal and percent.
4. A recipe for muffins calls for 2 cups of sugar to make 12 muffins. If you plan to make 48 muffins, how many cups of sugar will be needed?
5. There are 150 students in the 8th grade. If 90% of the 8th graders come to school on Thursday, how many 8th grade students are not in school that day?
6. A map of the United States shows 3 inches between Washington D.C. and Boston. If each inch represents 150 miles, how many miles is a round trip between the two cities?
7. Explain why  $\frac{1}{7}$  is an irrational number.
8. Would you rather have  $\frac{1}{2}$  of \$80, 75% of \$60, or 0.6 of \$70?
9. Give an example of a fraction that results in a terminating decimal.
10. Mt. Everest, the tallest mountain in the world, soars to over 29,000 feet above sea level. The average depth of the Pacific Ocean is 13,000 feet. What is the distance from the bottom of the Pacific Ocean to the top of Mt. Everest?

Name \_\_\_\_\_

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# Solve Word Problems



*Read word problems carefully to find the information you need to solve them.*

**Directions: Solve. Show your work.**

1. What is the connection between the exponent and the number of zeros in the powers of ten? Give an example.
2. On Tuesday morning, the temperature was  $3^{\circ}$  below zero. By noon, it had warmed up to  $12^{\circ}$ . Wednesday when I woke up, it was  $4^{\circ}$  and by the afternoon it was  $17^{\circ}$ . Which day had a wider range in temperature?
3. If 4 pounds of apples cost \$3.92, how much will 8 pounds cost?
4. In a recent election, 25% of 20,000 people voted to have a recycling program in Smithtown. In Lawrenceville, 15% of 30,000 voters made the same choice. In which town did more people choose recycling?
5. Janet estimated there were about 2,000 students in Southside High School. When an actual count was taken, there were 1,537 students. Was Janet's estimate correct to the nearest hundred?
6. In a football game, a team gained 85 yards in the first quarter, lost 15 yards in the second quarter, gained 100 yards in the third quarter, and lost 20 yards in the fourth quarter. How many yards did they gain in four quarters?
7. Which has a greater absolute value, -87 or +62? Explain your answer.
8. As part of his exercise program, Clark walked an average of 18 miles every 5 days. If he keeps up this pace, how many miles will he walk during April?
9. Which is not equivalent to the others in the list? 0.18, 18, 18%, 9/50
10. A perfect square is a number whose square root is a rational number. Is 8 a perfect square? Why or why not?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Review Numbers and Number Sense



*You've learned a lot about numbers and number sense in this unit. This review will help you practice those skills.*

**Directions:** Place in order from least to greatest value.

**a**

**b**

1.  $+7, -8, +5, -10, +9$  \_\_\_\_\_  $-5, -3, +6, -8, +7$  \_\_\_\_\_

2.  $-10, +15, -11, +17, -1$  \_\_\_\_\_  $+25, +27, -22, -21$  \_\_\_\_\_

3.  $+15, -20, +25, -19, +2$  \_\_\_\_\_  $-19, -18, +17, -20$  \_\_\_\_\_

4.  $-12, +13, -14, +11$  \_\_\_\_\_  $+8, +1, 0, -4, -3$  \_\_\_\_\_

**Directions:** Write **P** for *positive* next to those items that have a positive sum or difference.

**a**

**b**

**c**

5.  $-6 + +8$

$+7 - -9$

$-12 + -10$

6.  $+20 - -30$

$-30 + +29$

$+40 - +70$

7.  $-15 + +20$

$+25 - +24$

$-35 + +42$

8.  $+26 - +40$

$-37 + +60$

$+39 - +40$

**Directions:** Find the sums or differences.

**a**

**b**

**c**

9.  $5^3 + 10^4 =$

$\sqrt{144} - \sqrt{81} - 7^2 =$

$5^4 + 3^3 + 6^3 =$

10.  $8^3 + \sqrt{400} =$

$9^5 + 2^5 - 3^4 =$

$\sqrt{16} - \sqrt{25} + \sqrt{81} =$

11.  $\sqrt{1,600} + \sqrt{2,500} =$

$8^4 - 6^4 + 11^3 =$

$\sqrt{441} + 2^6 + 6^2 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Review Numbers and Number Sense



*Time for some more practice. When you're done with this page you will have mastered the skills covered in this unit!*

**Directions:** Reduce the fraction to simplest form.

a

1.  $\frac{13}{26} =$

b

$\frac{6}{10} =$

c

$\frac{9}{10} =$

2.  $\frac{2}{4} =$

$\frac{5}{25} =$

$\frac{4}{14} =$

3.  $\frac{18}{20} =$

$\frac{2}{12} =$

$\frac{20}{25} =$

**Directions:** Is the proportion correct? Write **Y** for yes and **N** for no.

a

4.  $\frac{7}{6} = \frac{21}{18}$  \_\_\_\_\_

b

$\frac{3}{2} = \frac{4}{6}$  \_\_\_\_\_

c

$\frac{6}{5} = \frac{12}{10}$  \_\_\_\_\_

5.  $\frac{6}{5} = \frac{18}{10}$  \_\_\_\_\_

$\frac{4}{3} = \frac{36}{27}$  \_\_\_\_\_

$\frac{8}{7} = \frac{16}{14}$  \_\_\_\_\_

**Directions:** Solve. Show your work.

6. Pants are on sale at 25% off full price. If the sale price of the pants is \$30, what is the full price?
7. The ratio of the length of the sides of a triangle are 2:4:5. If the longest side is 20 inches, what are the lengths of the other two sides?
8. List five possible numbers that could be rounded to 800 when rounding to the nearest hundred.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Addition Properties



*There are three addition properties. Understanding these properties will help you with addition problems.*

The **Commutative Property** states that the order in which numbers are added does not change the sum.

$$65 + 17 = 82$$

$$17 + 65 = 82$$

According to the **Associative Property**, the grouping of numbers does not affect the sum.

$$36 + (29 + 160) = 225 \quad (36 + 29) + 160 = 225$$

The **Zero Property** states that adding zero to a number does not change that number.

$$673 + 0 = 673$$

$$0 + 1,497 = 1,497$$

**Directions:** Identify the addition property. Write **C** for *Commutative*, **A** for *Associative*, or **Z** for *Zero*.

a

b

1. \_\_\_\_  $436 + 297 = 297 + 436$

\_\_\_\_  $0 + 4,320 = 4,320$

2. \_\_\_\_  $50 + (10 + 6) = (50 + 10) + 6$

\_\_\_\_  $8,700 + 95 = 95 + 8,700$

3. \_\_\_\_  $23,448 + 0 = 23,448$

\_\_\_\_  $(6 + 8) + 4 = 6 + (8 + 4)$

**Directions:** Explain your answer.

4. Why would the zero property also apply to subtraction?
5. Can the commutative property also apply to multiplication?
6. Why don't any of these properties apply to division?

**Directions:** Give an example to illustrate the property.

7. Commutative

8. Associative

9. Zero

Name \_\_\_\_\_

Date \_\_\_\_\_

# Add 3 Digit Numbers



*Line up the numbers at the ones place and regroup if necessary.*

**Directions: Find the sum.**

**a**

1.  $846 + 356 + 74 =$

2.  $15 + 448 + 993 =$

3.  $89 + 4 + 649 =$

4.  $385 + 768 + 55 + 130 =$

5.  $12 + 390 + 689 + 98 =$

6.  $384 + 872 + 299 =$

7.  $57 + 7 + 544 + 177 =$

8.  $6 + 465 + 832 + 19 =$

**b**

$548 + 642 + 73 =$

$6 + 95 + 327 =$

$17 + 935 + 68 =$

$89 + 75 + 6 + 579 =$

$478 + 841 + 688 + 336 =$

$92 + 166 + 352 + 75 =$

$15 + 87 + 743 + 821 =$

$33 + 22 + 912 + 420 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Add 7 Digit Numbers



**Directions:** Find the sum.

**a**

1.  $2,563,494 + 87,465 =$

2.  $4,995,892 + 43,885 =$

3.  $196,836 + 2,472,299 =$

4.  $3,871,620 + 8,359 + 12,845 =$

5.  $8,111,462 + 12,888 + 175,227 =$

6.  $3,829,077 + 192,134 =$

7.  $7,283,119 + 67,824 + 58 =$

8.  $5,765,446 + 20,859 + 16 + 847 =$

**b**

$3,465,304 + 466,874 =$

$639,185 + 490 + 1,857 =$

$275,326 + 1,243,987 =$

$4,379,841 + 6,047 =$

$3,685,409 + 137,849 =$

$4,411,833 + 5,921,454 =$

$6,425,864 + 43,875 =$

$4,201,119 + 44,632 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Add Decimals



*When adding numbers with decimals, make sure to line up the decimal points. Add zeros to make the numbers the same length.*

**Directions: Find the sum.**

**a**

1.  $836.29 + 85.4 =$

2.  $0.07 + 68.158 + 3 =$

3.  $448.99 + 1,365.2 =$

4.  $0.169 + 0.03 + 5 =$

5.  $23,843 + 2.5 + 88.34 =$

6.  $16.99 + 5.8 + 138.765 =$

7.  $148,762 + 47.2 + 0.13 =$

8.  $43.64 + 2.75 + 189 =$

**b**

$3 + 9.558 + 6.4 + 13.22 =$

$2.006 + 1.72 + 8 + 6.59 =$

$9.03 + 0.07 + 83 + 15.751 =$

$3.256 + 0.14 + 0.002 =$

$1,237,552.3 + 61.931 =$

$28,412 + 56.39 + 7.628 =$

$5.391 + 15.25 + 0.74 =$

$10.23 + 614 + 12.4 =$

Name \_\_\_\_\_

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# Practice Addition



*Now you're ready to add small numbers, as well as larger numbers.  
Just work carefully and you'll do fine!*

**Directions: Find the sum.**

**a**

1.  $689 + 790 + 801 =$

2.  $5,143,254 + 6,254,365 =$

3.  $0.2 + 8.47 + 9.589 + 15 =$

4.  $912 + 123 + 654 =$

5.  $7,476,587 + 8,587,688 =$

6.  $58,196 + 85 + 9,698,799 =$

7.  $234 + 321 + 543 + 665 =$

8.  $5.66 + 25 + 2.7 + 8.354 =$

**b**

$1,437,899 + 2,411,835 =$

$159 + 91 + 7 + 260 =$

$1 + 3.8 + 7.91 + 2.642 =$

$999 + 734 + 226 =$

$30 + 2.147 + 8.19 + 6.5 =$

$1,709,843 + 692,075 =$

$787 + 556 + 998 =$

$9.19 + 424 + 6,014,072 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Practice Addition



*They say practice makes perfect, so this will be a great help!*

**Directions:** Compare the sums using  $<$ ,  $>$ , or  $=$ .

1.  $385 + 496$  \_\_\_  $485 + 396$
2.  $9,287,613 + 54,197$  \_\_\_  $9,872,136 + 54,917$
3.  $6.7 + 8.35 + 4.814$  \_\_\_  $6.7 + 8.53 + 4.841$
4.  $496 + 58 + 507$  \_\_\_  $469 + 85 + 570$
5.  $3,956,432 + 143,682$  \_\_\_  $3,596,432 + 143,862$
6.  $9 + 5.36 + 0.997$  \_\_\_  $9 + 5.63 + 0.979$
7.  $681 + 94 + 792$  \_\_\_  $618 + 49 + 729$
8.  $4,975,351 + 58,791$  \_\_\_  $4,975,531 + 58,719$
9.  $3.9 + 0.93 + 2.35$  \_\_\_  $3.9 + 0.39 + 2.53$
10.  $830 + 941 + 6$  \_\_\_  $830 + 914 + 16$
11.  $536,497 + 398,184$  \_\_\_  $563,497 + 389,814$
12.  $0.157 + 1.6 + 2.43$  \_\_\_  $0.571 + 1.6 + 2.34$
13.  $726,385 + 14,128$  \_\_\_  $726,358 + 14,218$
14.  $2.2 + 4.19 + 6.397$  \_\_\_  $2.2 + 4.91 + 6.379$
15.  $476 + 822 + 135$  \_\_\_  $467 + 822 + 153$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Subtract 3 Digit Numbers



*As with addition, line up the numbers at the ones place.*

**Directions: Find the difference.**

**a**

1.  $767 - 258 =$

2.  $190 - 87 =$

3.  $201 - 135 =$

4.  $312 - 246 =$

5.  $929 - 707 =$

6.  $130 - 83 =$

7.  $241 - 84 =$

8.  $352 - 95 =$

**b**

$878 - 369 =$

$423 - 357 =$

$645 - 346 =$

$756 - 468 =$

$470 - 246 =$

$581 - 357 =$

$692 - 468 =$

$703 - 579 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Subtract 7 Digit Numbers



*Subtracting larger numbers is a snap. Take your time and there's no problem!*

**Directions: Find the difference.**

**a**

1.  $1,357,135 - 296,488 =$

2.  $7,830,257 - 942,673 =$

3.  $6,729,167 - 569,847 =$

4.  $5,618,258 - 470,958 =$

5.  $4,507,349 - 281,069 =$

6.  $3,496,431 - 292,170 =$

7.  $2,385,522 - 103,281 =$

8.  $1,274,613 - 842,193 =$

**b**

$4,453,071 - 1,907,182 =$

$6,991,493 - 3,189,908 =$

$2,547,875 - 1,361,726 =$

$5,830,077 - 474,523 =$

$4,941,986 - 369,864 =$

$3,052,895 - 167,541 =$

$2,163,704 - 192,578 =$

$1,235,789 - 654,987 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Subtract Decimals



*As with addition, line up the numbers at the decimal point.*

**Directions: Find the difference.**

**a**

1.  $837.2 - 0.45 =$

2.  $745.4 - 92.31 =$

3.  $63.63 - 8.14 =$

4.  $5.22 - 2.5 =$

5.  $4.171 - 3.96 =$

6.  $308.0 - 5.877 =$

7.  $29.99 - 4.786 =$

8.  $1.808 - 0.695 =$

**b**

$45.23 - 5.2 =$

$9.232 - 1.09 =$

$81.41 - 2.989 =$

$70.5 - 38.78 =$

$6.961 - 4.767 =$

$58.72 - 56.5 =$

$478.3 - 65.45 =$

$3.694 - 7.434 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Practice Subtraction



*At this point, subtracting small and large numbers is easy. This practice will help you with those skills.*

**Directions: Find the difference.**

**a**

1.  $945 - 369 =$

2.  $856 - 490 =$

3.  $747 - 581 =$

4.  $638 - 622 =$

5.  $529 - 163 =$

6.  $410 - 254 =$

7.  $201 - 135 =$

8.  $592 - 116 =$

**b**

$8,341,572 - 5,119,461 =$

$1,096,741 - 962,185 =$

$2,985,833 - 1,293,908 =$

$3,874,925 - 1,182,816 =$

$4,763,017 - 2,071,704 =$

$5,652,109 - 3,160,692 =$

$6,541,292 - 4,295,881 =$

$7,430,384 - 1,384,725 =$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Practice Subtraction



*A little more practice won't hurt. You'll be able to handle any subtraction problem you come across!*

**Directions:** Compare the differences using  $<$ ,  $>$ , or  $=$ .

1.  $5,157,864 - 3,279,621$  \_\_\_\_  $5,268,777 - 3,380,732$
2.  $4.523 - 0.927$  \_\_\_\_  $4.235 - 0.297$
3.  $3,614 - 1,892$  \_\_\_\_  $3,164 - 1,982$
4.  $2,705,679 - 1,439,280$  \_\_\_\_  $1,507,767 - 1,349,028$
5.  $38.962 - 14.249$  \_\_\_\_  $38.269 - 14.429$
6.  $49,875 - 27,362$  \_\_\_\_  $49,785 - 27,263$
7.  $5,078,760 - 2,528,161$  \_\_\_\_  $5,780,067 - 2,825,611$
8.  $616.97 - 18.135$  \_\_\_\_  $616.79 - 18.315$
9.  $725,003 - 501,762$  \_\_\_\_  $725,300 - 501,672$
10.  $8,341,851 - 3,617,042$  \_\_\_\_  $8,431,158 - 3,167,402$
11.  $9.432 - 6.36$  \_\_\_\_  $9.234 - 6.63$
12.  $8,523 - 5,472$  \_\_\_\_  $8,325 - 5,742$
13.  $7,614,942 - 4,706,123$  \_\_\_\_  $7,641,492 - 4,067,321$
14.  $67.05 - 25.862$  \_\_\_\_  $67.5 - 25.682$
15.  $5,896,033 - 5,815,294$  \_\_\_\_  $5,689,303 - 5,158,942$

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# Check Addition and Subtraction



You can check addition by using the **inverse** (opposite) operation.

**Directions:** Check the answer. Change an answer if it is incorrect.

**a**

1.  $43,882 + 17,629 = 65,510$

2.  $561,497 - 450,508 = 1,012,005$

3.  $7,238,819 + 8,291,825 = 15,530,644$

4.  $8,327 - 988 = 7,339$

5.  $941 + 852 = 89$

6.  $9.505 - 6.39 = 3,115$

7.  $86,142 + 42,708 = 128,850$

8.  $772,336 - 239,269 = 533,067$

**b**

$46,395 + 14,127 = 32,268$

$825 + 728 = 1,543$

$717.945 - 59.06 = 655.885$

$3,169 - 2,382 = 787$

$40,506 + 72,728 = 113,234$

$594,158 - 261,070 = 333,158$

$6,832,471 + 4,507,142 = 11,239,613$

$82,471 + 45,042 = 127,513$

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# Solve Word Problems



*After you finish solving the word problem, ask yourself if the solution answers the question being asked.*

**Directions: Solve. Show your work.**

1. Twenty years ago, Smithville had a population of 239,476. Since then, 53,978 people moved to Smithville and 7,843 people left. How many people live in Smithville today?
  
  
  
  
  
  
  
  
  
  
2. Explain why  $3,589 + (578,362 + 41,673) = (41,673 + 3,589) + 578,362$ .
  
  
  
  
  
  
  
  
  
  
3. Mr. Clark needs 100,000 miles of air travel to receive a free trip. During the last three years he has flown 12,297 miles, 1,318 miles, and 35,998 miles. How many more miles must he fly to receive a free trip?
  
  
  
  
  
  
  
  
  
  
4. There are four mystery numbers. The first number is 81,002. The second number is 5,766 less than the first number. The third number is 499 less than the second number. The fourth number is 37,336 more than the third number. What are the second, third, and fourth numbers?

Name \_\_\_\_\_

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# Solve Word Problems



*For addition and subtraction word problems, you might want to estimate the answer to see if your solution makes sense.*

**Directions:** Use the table showing the populations of various counties in New York State during the last census to answer questions 1–3.

County	Population
Bronx	1,203,789
Nassau	1,287,348
Rensselaer	154,429
Sullivan	69,287
Ulster	165,304
Westchester	874,866

1. At the last census, how much greater was the population of Nassau County than Ulster County?
2. What is the combined population of the six counties in the table?
3. The population of Bronx County is about 1.2 million people. How much different is this than the population of Sullivan County?
4. In 1660, the population of the English Colonies was about 75,000. It increased about 3,750 people per year until 1700. Between 1700 and 1720 the population increased by about 8,750 people per year. What was the population by 1720?

Name \_\_\_\_\_

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# Review Addition and Subtraction



*By now, your addition and subtraction is top notch! Keep up the good work!*

**Directions: Find the sum or difference.**

**a**

1.  $5,120,832 + 879,055 =$

2.  $64.031 - 8.94 =$

3.  $31,429 + 99 + 12,687 =$

4.  $225,359 - 1,006 =$

**b**

$76,974 + 8 + 442,653 =$

$85,865 + 573 + 1,979 =$

$9,475,629 + 7,295,836 =$

$1,364.7 - 299.488 =$

**Directions: Write the letter of the correct solution.**

5.  $1,249,082 - 575,924 =$

A. 846,924

6.  $316,817 + 495,378 =$

B. 800,632

7.  $5,087,264 - 4,863,249 =$

C. 673,158

8.  $606,355 + 194,277 =$

D. 812,195

9.  $2,815,446 - 1,968,522 =$

E. 725,952

10.  $434,537 + 291,415 =$

F. 224,015

Name \_\_\_\_\_

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# Review Addition and Subtraction



*Here's some more practice before you move on to the next unit. You know you'll do great!*

**Directions:** Find the missing digits.

**a**

**b**

1.  $3,767,8 \_ \_ + 92,738 = 3,860,597$

$82, \_ \_ 8 - 37,995 = 44,633$

2.  $2,519,345 - \_ \_ 8, \_ 9 \_ = 1,941,149$

$7,173,915 + 2,387, \_ \_ 9 = 9,561,104$

3.  $\_ \_ \_, 062 + 3,748 = 147,810$

$628,40 \_ - 28,659 = 599,744$

4.  $9 \_ \_, \_ 73 - 12,956 = 926,917$

$539,515 + \_ 64, \_ 27 = 804,342$

**Directions:** Is the sum or difference correct? Write **Y** for yes or **N** for no. If **no**, show the correct answer.

**a**

**b**

5.  $6.234 + 17.8 = 24.034$  \_\_\_\_\_

$178 - 5.17 = 173.37$  \_\_\_\_\_

6.  $5,143,297 - 28,735 = 541,652$  \_\_\_\_\_

$2,870,628 - 383,838 = 2,486,790$  \_\_\_\_\_

7.  $40,523 + 3,962 + 992 = 44,757$  \_\_\_\_\_

$396 + 5,784 + 17,984 = 26,414$  \_\_\_\_\_

8.  $396,148 - 40,519 = 355,629$  \_\_\_\_\_

$405,284 - 36,945 = 368,339$  \_\_\_\_\_

**Directions:** Write an addition or subtraction problem to match the sum or difference.

**a**

**b**

9.  $\_ + \_ = 9,683,149$

$\_ - \_ = 1.576$

10.  $\_ - \_ = 365.917$

$\_ + \_ = 5,129,873$

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# Find Multiples



*Multiples are found by multiplying a number by another number.*

The multiples of 6 are:

6	12	18	24	30	36
$6 \times 1$	$6 \times 2$	$6 \times 3$	$6 \times 4$	$6 \times 5$	$6 \times 6$

**Directions:** List the first 6 multiples of each number.

a		b	
1. 3	_____	7	_____
2. 16	_____	11	_____
3. 8	_____	17	_____
4. 29	_____	50	_____
5. 2	_____	31	_____
6. 14	_____	13	_____
7. 20	_____	90	_____
8. 18	_____	24	_____
9. 10	_____	15	_____
10. 21	_____	9	_____

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# List Factors



*When two numbers are multiplied and result in a product, they are said to be factors of that product.*

The factors of 30 are 1, 2, 3, 5, 6, 10, 15 and 30, since  $30 \times 1 = 30$ ,  $15 \times 2 = 30$ ,  $10 \times 3 = 30$ , and  $6 \times 5 = 30$ .

**Directions:** List the factors of each number.

a		b	
1.	4	25	
2.	12	144	
3.	100	30	
4.	34	42	
5.	40	150	
6.	32	45	
7.	68	62	
8.	110	90	
9.	57	44	
10.	48	14	

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# Identify Prime and Composite Numbers



*If a number has only 2 factors, itself and 1, it is a prime number.*

These numbers are prime.

$$5 = 5 \times 1 \quad 19 = 19 \times 1 \quad 157 = 157 \times 1$$

These numbers are composite because each has more than two factors.

$$16 = 16 \times 1 = 4 \times 4 = 8 \times 2 \quad 20 = 20 \times 1 = 5 \times 4 = 10 \times 2$$

**Directions:** Write *prime* or *composite* for each number.

a

b

c

- |              |           |           |
|--------------|-----------|-----------|
| 1. 30 _____  | 17 _____  | 100 _____ |
| 2. 75 _____  | 29 _____  | 95 _____  |
| 3. 61 _____  | 50 _____  | 37 _____  |
| 4. 140 _____ | 117 _____ | 42 _____  |
| 5. 121 _____ | 83 _____  | 169 _____ |
| 6. 7 _____   | 196 _____ | 77 _____  |
| 7. 9 _____   | 31 _____  | 52 _____  |
| 8. 29 _____  | 89 _____  | 3 _____   |
| 9. 13 _____  | 60 _____  | 11 _____  |

Name \_\_\_\_\_

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# Multiply 3 Digits by 1 Digit



*Multiplication is easy if you've mastered your multiplication facts!*

**Directions: Find the product.**

**a**

1.  $483 \times 6 =$

2.  $716 \times 9 =$

3.  $149 \times 4 =$

4.  $250 \times 6 =$

5.  $462 \times 8 =$

6.  $573 \times 7 =$

7.  $684 \times 5 =$

8.  $795 \times 9 =$

**b**

$594 \times 7 =$

$827 \times 2 =$

$938 \times 3 =$

$349 \times 8 =$

$250 \times 5 =$

$839 \times 4 =$

$472 \times 7 =$

$583 \times 8 =$

**c**

$806 \times 2 =$

$917 \times 3 =$

$228 \times 9 =$

$339 \times 7 =$

$605 \times 8 =$

$938 \times 3 =$

$398 \times 6 =$

$841 \times 9 =$

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# Multiply 3 Digits by 2 Digits



*When you multiply by 2 digits remember to use a zero as the placeholder when you multiply by the tens place.*

**Directions: Find the product.**

**a**

1.  $147 \times 81 =$

2.  $219 \times 39 =$

3.  $328 \times 48 =$

4.  $437 \times 57 =$

5.  $546 \times 66 =$

6.  $655 \times 75 =$

7.  $764 \times 84 =$

8.  $873 \times 93 =$

**b**

$258 \times 39 =$

$329 \times 91 =$

$441 \times 82 =$

$562 \times 73 =$

$683 \times 64 =$

$734 \times 55 =$

$855 \times 46 =$

$976 \times 37 =$

**c**

$982 \times 12 =$

$191 \times 21 =$

$212 \times 39 =$

$323 \times 48 =$

$593 \times 65 =$

$369 \times 41 =$

$412 \times 57 =$

$402 \times 54 =$

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# Multiply 3 Digits by 3 Digits



*After multiplying the ones and tens places, multiply by the hundreds place.*

**Directions:** Is the product correct? Write **Y** for *yes* and **N** for *no*. If *no*, show the correct answer.

1. \_\_\_\_  $619 \times 145 = 89,755$
2. \_\_\_\_  $412 \times 209 = 86,108$
3. \_\_\_\_  $203 \times 398 = 80,974$
4. \_\_\_\_  $194 \times 487 = 94,478$
5. \_\_\_\_  $385 \times 576 = 22,760$
6. \_\_\_\_  $576 \times 665 = 383,400$
7. \_\_\_\_  $767 \times 754 = 578,318$
8. \_\_\_\_  $158 \times 843 = 133,914$
9. \_\_\_\_  $249 \times 932 = 232,068$
10. \_\_\_\_  $330 \times 121 = 30,993$
11. \_\_\_\_  $421 \times 219 = 92,199$
12. \_\_\_\_  $512 \times 398 = 203,776$

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# Multiply 5 Digits by 3 Digits



*This is no more difficult than what you just learned. Just work carefully!*

**Directions:** Compare the products by using  $<$  or  $>$ .

**a**

**b**

- |  |  |
|--|--|
| 1. $12,893 \times 456$ ____ $12,983 \times 465$  | $567 \times 13,929$ ____ $576 \times 13,828$ |
| 2. $21,290 \times 579$ ____ $21,920 \times 470$  | $478 \times 67,418$ ____ $784 \times 67,184$ |
| 3. $30,381 \times 648$ ____ $30,183 \times 846$  | $369 \times 58,327$ ____ $639 \times 58,237$ |
| 4. $49,472 \times 737$ ____ $49,724 \times 377$  | $250 \times 49,236$ ____ $205 \times 49,326$ |
| 5. $58,563 \times 826$ ____ $58,365 \times 923$  | $141 \times 30,145$ ____ $411 \times 20,514$ |
| 6. $67,654 \times 915$ ____ $67,456 \times 990$  | $232 \times 21,054$ ____ $322 \times 20,154$ |
| 7. $76,745 \times 104$ ____ $76,547 \times 401$  | $323 \times 12,963$ ____ $233 \times 13,957$ |
| 8. $85,836 \times 293$ ____ $85,638 \times 329$  | $414 \times 93,872$ ____ $441 \times 92,873$ |
| 9. $94,927 \times 382$ ____ $94,729 \times 832$  | $505 \times 84,781$ ____ $550 \times 81,478$ |
| 10. $13,018 \times 471$ ____ $13,108 \times 147$ | $696 \times 75,690$ ____ $966 \times 70,695$ |
| 11. $22,109 \times 560$ ____ $22,901 \times 506$ | $787 \times 66,509$ ____ $877 \times 65,609$ |
| 12. $31,290 \times 651$ ____ $31,920 \times 561$ | $878 \times 57,418$ ____ $788 \times 58,741$ |

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# Multiply 7 Digits by 1 Digit



*Don't let multiplying large numbers bother you.*

**Directions: Find the product.**

**a**

1.  $9,454,102 \times 8 =$

2.  $8,363,294 \times 6 =$

3.  $7,272,386 \times 4 =$

4.  $6,181,478 \times 2 =$

5.  $5,090,561 \times 3 =$

6.  $4,909,653 \times 5 =$

7.  $3,818,745 \times 7 =$

8.  $2,727,837 \times 9 =$

**b**

$4,090,561 \times 7 =$

$5,181,470 \times 5 =$

$6,272,388 \times 3 =$

$7,363,296 \times 8 =$

$8,454,104 \times 6 =$

$9,545,012 \times 4 =$

$1,636,929 \times 2 =$

$3,742,922 \times 4 =$

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# Multiply 7 Digits by 2 Digits



*You already learned to use a zero as a placeholder when you multiply by the tens digit. Multiplying larger numbers is no different.*

**Directions: Find the product.**

**a**

1.  $2,413,561 \times 78 =$

2.  $4,332,659 \times 69 =$

3.  $6,251,742 \times 50 =$

4.  $8,170,838 \times 41 =$

5.  $3,099,123 \times 32 =$

6.  $5,908,217 \times 23 =$

7.  $7,827,304 \times 14 =$

8.  $9,746,496 \times 95 =$

**b**

$7,059,128 \times 24 =$

$6,140,039 \times 32 =$

$5,231,940 \times 40 =$

$4,322,851 \times 59 =$

$3,413,762 \times 68 =$

$2,584,673 \times 77 =$

$1,665,585 \times 86 =$

$8,642,975 \times 35 =$

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# Multiply Whole Numbers by Decimals



*Count the number of decimal places in the number you multiplied by.  
Move the decimal point that many places to the left in the product.*

**Directions: Find the product.**

**a**

1.  $9,278 \times 1.27 =$

2.  $83,690 \times 23.68 =$

3.  $745,089 \times 3.456 =$

4.  $6,541,157 \times 4.54 =$

5.  $5,632 \times 56.37 =$

6.  $47,237 \times 6.728 =$

7.  $381,455 \times 7.81 =$

8.  $2,905,143 \times 89.07 =$

**b**

$725,823 \times 24.7 =$

$19,857 \times 3.1 =$

$9,076 \times 0.2298 =$

$4,369,568 \times 33.62 =$

$327,848 \times 22.75 =$

$21,874 \times 1.18 =$

$1,096 \times 9.091 =$

$522,117 \times 39.06 =$

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# Multiply Decimals by Decimals



*To place the decimal point in the product, count the number of places to the right of the decimal points in the factors. Place the decimal point in the product that many places to the left.*

**Directions: Find the product.**

**a**

1.  $58.9 \times 2.7 =$

2.  $67.815 \times 1.32 =$

3.  $7,672.41 \times 5.96 =$

4.  $856.39 \times 1.87 =$

5.  $94.548 \times 9.25 =$

6.  $1,345.782 \times 15.5 =$

7.  $223.66 \times 7.96 =$

8.  $312.759 \times 92.3 =$

**b**

$4,725.47 \times 61.4 =$

$532.567 \times 0.714 =$

$38,162.8 \times 5.23 =$

$7,721.1 \times 83.1 =$

$681.025 \times 4.74 =$

$590.93 \times 6.7 =$

$4,018.4 \times 4.28 =$

$533.231 \times 9.07 =$

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# Multiply Integers



*When multiplying integers, always read the signs.*

When a positive integer is multiplied by a negative integer, the product is negative.  $-7 \times +8 = -56$

When two negative integers are multiplied, the product is positive.  $-9 \times -5 = +45$

**Directions: Find the product.**

**a**

1.  $+71,209$   
 $\times +212$

2.  $\times 8,039,895$   
 $\times +30$

3.  $+99,487$   
 $\times +493$

4.  $\times 185,768$   
 $\times \times 5$

5.  $+27,665$   
 $\times \times 68$

6.  $\times 3,675,474$   
 $\times \times 7$

**b**

$-578$   
 $\times \times 8$

$+6,697$   
 $\times \times 92$

$\times 75,092$   
 $\times +134$

$+841,146$   
 $\times +2$

$\times 9,327,384$   
 $\times \times 35$

$+123$   
 $\times +467$

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# Divide 3 Digits by 1 Digit



*In division, the answer, known as the quotient, may be a decimal.*

**Directions: Find the quotient.**

**a**

1.  $690 \div 5 =$

2.  $459 \div 7 =$

3.  $872 \div 3 =$

4.  $494 \div 5 =$

5.  $154 \div 9 =$

6.  $830 \div 3 =$

7.  $812 \div 9 =$

8.  $518 \div 5 =$

**b**

$736 \div 2 =$

$612 \div 3 =$

$503 \div 4 =$

$749 \div 4 =$

$385 \div 6 =$

$245 \div 8 =$

$276 \div 7 =$

$921 \div 2 =$

**c**

$349 \div 2 =$

$703 \div 8 =$

$427 \div 6 =$

$963 \div 2 =$

$658 \div 5 =$

$258 \div 9 =$

$336 \div 7 =$

$167 \div 8 =$

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# Divide 5 Digits by 1 Digit



*As you divide larger numbers, use the division facts that you've memorized.*

**Directions:** Is the quotient correct? Write **Y** for *yes* and **N** for *no*. If *no*, write the correct answer.

**a**

1.  $87,418 \div 2 = 43,709$

2.  $98,337 \div 9 = 10,926 \text{ R}3$

3.  $19,256 \div 8 = 2,406$

4.  $42,932 \div 5 = 8,584$

5.  $53,842 \div 4 = 13,460 \text{ R}2$

6.  $75,680 \div 2 = 37,640$

7.  $86,509 \div 9 = 9,612 \text{ R}3$

8.  $67,418 \div 8 = 8,426$

**b**

$80,561 \div 9 = 8,951$

$42,382 \div 7 = 6,054 \text{ R}5$

$94,105 \div 5 = 18,831$

$75,086 \div 4 = 18,774$

$37,843 \div 2 = 18,921 \text{ R}1$

$18,729 \div 3 = 6,253$

$10,960 \div 4 = 2,740$

$29,059 \div 5 = 5,911 \text{ R}4$

Name \_\_\_\_\_

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# Divide 3 Digits by 2 Digits



*Round each of the numbers to get a sense of what the quotient should be.*

**Directions:** Compare the quotients using  $<$ ,  $>$ , or  $=$ .

**a**

1.  $134 \div 29$  \_\_\_\_  $143 \div 28$

2.  $225 \div 98$  \_\_\_\_  $252 \div 99$

3.  $316 \div 87$  \_\_\_\_  $361 \div 86$

4.  $407 \div 76$  \_\_\_\_  $470 \div 77$

5.  $598 \div 65$  \_\_\_\_  $589 \div 64$

6.  $689 \div 54$  \_\_\_\_  $698 \div 55$

7.  $770 \div 23$  \_\_\_\_  $707 \div 22$

8.  $861 \div 42$  \_\_\_\_  $816 \div 41$

9.  $952 \div 21$  \_\_\_\_  $925 \div 20$

10.  $194 \div 32$  \_\_\_\_  $149 \div 31$

11.  $283 \div 43$  \_\_\_\_  $238 \div 42$

12.  $372 \div 54$  \_\_\_\_  $327 \div 53$

**b**

$319 \div 92$  \_\_\_\_  $391 \div 93$

$408 \div 81$  \_\_\_\_  $480 \div 82$

$597 \div 79$  \_\_\_\_  $579 \div 80$

$686 \div 68$  \_\_\_\_  $668 \div 67$

$775 \div 57$  \_\_\_\_  $757 \div 56$

$864 \div 46$  \_\_\_\_  $846 \div 45$

$953 \div 35$  \_\_\_\_  $935 \div 34$

$142 \div 24$  \_\_\_\_  $124 \div 25$

$231 \div 13$  \_\_\_\_  $213 \div 12$

$320 \div 22$  \_\_\_\_  $302 \div 21$

$418 \div 31$  \_\_\_\_  $481 \div 32$

$502 \div 49$  \_\_\_\_  $520 \div 50$

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# Divide 3 Digits by 3 Digits



*Just take your time and you'll do fine. Think about what you've already learned.*

**Directions:** Compare the quotients using  $<$  or  $>$ .

**a**

**b**

1.  $201 \div 190$  \_\_\_\_  $210 \div 191$

$936 \div 421$  \_\_\_\_  $963 \div 422$

2.  $492 \div 281$  \_\_\_\_  $429 \div 279$

$812 \div 156$  \_\_\_\_  $821 \div 157$

3.  $683 \div 372$  \_\_\_\_  $638 \div 371$

$703 \div 247$  \_\_\_\_  $730 \div 248$

4.  $874 \div 463$  \_\_\_\_  $847 \div 462$

$694 \div 338$  \_\_\_\_  $649 \div 337$

5.  $965 \div 154$  \_\_\_\_  $956 \div 152$

$585 \div 429$  \_\_\_\_  $558 \div 428$

6.  $356 \div 245$  \_\_\_\_  $365 \div 246$

$476 \div 110$  \_\_\_\_  $467 \div 109$

7.  $547 \div 336$  \_\_\_\_  $574 \div 337$

$367 \div 201$  \_\_\_\_  $376 \div 202$

8.  $738 \div 427$  \_\_\_\_  $783 \div 429$

$258 \div 192$  \_\_\_\_  $285 \div 193$

9.  $929 \div 518$  \_\_\_\_  $992 \div 520$

$649 \div 583$  \_\_\_\_  $694 \div 584$

10.  $810 \div 609$  \_\_\_\_  $801 \div 608$

$230 \div 174$  \_\_\_\_  $203 \div 173$

11.  $222 \div 192$  \_\_\_\_  $210 \div 191$

$321 \div 265$  \_\_\_\_  $312 \div 264$

12.  $392 \div 281$  \_\_\_\_  $329 \div 279$

$412 \div 356$  \_\_\_\_  $421 \div 355$

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# Divide Integers



*The signs of the integers in a division problem will affect the quotient.*

When dividing integers, if the signs are both positive or negative, the quotient is positive.

$$+56 \div +8 = +7$$

$$-40 \div -8 = +5$$

If the signs of the integers are different, the quotient is negative.

$$-42 \div +6 = -7$$

$$+36 \div -4 = -9$$

**Directions:** Find the quotient. Use R to indicate any remainder.

a

b

c

1.  $-18 \overline{) +27,864}$

$+9 \overline{) -106,780}$

$+8 \overline{) +215,872}$

2.  $-36 \overline{) +65,016}$

$+27 \overline{) -46,941}$

$+7 \overline{) -324,961}$

3.  $+54 \overline{) +13,287}$

$+63 \overline{) -32,382}$

$-5 \overline{) -542,140}$

4.  $-72 \overline{) +51,408}$

$-4 \overline{) +651,231}$

$+3 \overline{) -769,323}$

5.  $+81 \overline{) -70,551}$

$-2 \overline{) +877,416}$

$-90 \overline{) +99,656}$

6.  $+19 \overline{) -18,745}$

$+3 \overline{) -985,506}$

$-4 \overline{) +193,688}$

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# Divide 7 Digits by 2 Digits



*Is division getting easier? If you've been doing well, this page will be a breeze!*

**Directions:** Find the quotient. Use R to indicate any remainder.

**a**

1.  $2,944,178 \div 15 =$

2.  $4,253,269 \div 21 =$

3.  $6,362,350 \div 32 =$

4.  $8,871,441 \div 43 =$

5.  $1,180,532 \div 54 =$

6.  $3,099,623 \div 65 =$

7.  $5,908,714 \div 76 =$

8.  $7,622,037 \div 63 =$

**b**

$8,678,236 \div 72 =$

$9,459,145 \div 53 =$

$1,231,054 \div 34 =$

$2,900,963 \div 15 =$

$3,781,872 \div 96 =$

$4,562,781 \div 77 =$

$5,343,690 \div 58 =$

$6,361,955 \div 82 =$

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# Divide Decimals by Whole Numbers



*When dividing a decimal by a whole number, remember to place the decimal point in the quotient.*

**Directions:** Find the quotient.

**a**

1.  $2,127.80 \div 5 =$

2.  $30,369.2 \div 82 =$

3.  $4,945.01 \div 2 =$

4.  $5,854.10 \div 6 =$

5.  $67,632.9 \div 54 =$

6.  $7,672.35 \div 45 =$

7.  $85,814.7 \div 3 =$

8.  $9,490.56 \div 22 =$

**b**

$99,162.7 \div 18 =$

$8,825.46 \div 27 =$

$77,346.5 \div 2 =$

$6,643.84 \div 45 =$

$55,520.3 \div 5 =$

$4,461.12 \div 63 =$

$33,703.1 \div 72 =$

$3,289.50 \div 81 =$

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# Divide Decimals by Decimals



*When dividing a decimal by a decimal, count the number of decimal places in the divisor. Move the decimal point in the divisor and dividend that many places to the right.*

**Directions:** Find the quotient.

**a**

1.  $953.8 \div 50.2 =$

2.  $77.4944 \div 7.94 =$

3.  $591.6 \div 98.6 =$

4.  $35.8342 \div 2.78 =$

5.  $138.3 \div 46.1 =$

6.  $52.24 \div 6.53 =$

7.  $425.035 \div 84.5 =$

8.  $61.7185 \div 1.37 =$

**b**

$275.6 \div 1.3 =$

$132.531 \div 0.21 =$

$566.2 \div 3.8 =$

$23.1472 \div 0.46 =$

$122.04 \div 5.4 =$

$434 \div 0.62 =$

$162.266 \div 7.9 =$

$112.816 \div 0.88 =$

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# Multiply and Divide Numbers with Exponents



*To multiply or divide numbers with exponents, remember these rules.*

If the bases are the same, add the exponents to find the product.

$$2^2 \times 2^3 = 2^5 \text{ is the same as } 4 \times 8 = 32.$$

If the bases are different, write the numbers in expanded form and multiply.

$$3^2 \times 5^2 = 9 \times 25 = 225$$

If the bases are the same, subtract the exponents to find the quotient.

$$4^3 \div 4^2 = 4^1 \text{ is the same as } 64 \div 16 = 4.$$

If the bases are different, write the numbers in expanded form and divide.

$$6^2 \div 2^2 = 36 \div 9 = 4.$$

**Directions:** Find the product or quotient.

**a**

1.  $2^2 \times 3^2 =$

2.  $2^4 \div 2^2 =$

3.  $4^4 \times 4^2 =$

4.  $4^2 \times 6^2 =$

5.  $7^3 \div 4^3 =$

6.  $3^2 \div 1^2 =$

**b**

$6^2 \div 2^2 =$

$3^3 \times 3^4 =$

$4^5 \div 4^2 =$

$3^6 \div 3^3 =$

$5^2 \times 5^3 =$

$5^2 \times 2^2 =$

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# Check Multiplication and Division



*Multiplication and division are inverse operations.  
They can be used to check each other.*

Check division by multiplying the quotient by the divisor and adding the remainder if necessary. The result should equal the dividend.

Check multiplication by dividing the product by either factor.  
The quotient should match the other factor.

---

**Directions:** Solve. Check the product or quotient. Show your work.

1.  $12,642 \div 37 =$

2.  $9,895,651 \times 54 =$

3.  $3,687,149 \times 28 =$

4.  $8,714,510 \div 43 =$

5.  $928,153 \div 17 =$

6.  $762,389 \times 32 =$

7.  $834,347 \times 35 =$

8.  $653,298 \div 21 =$

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# Solve Word Problems



*Sometimes the information needed to solve word problems is presented in a table.*

**Directions: Solve.**

**Use the table showing attendance at baseball games to answer questions 1–4.**

Team	Attendance
Chicago Cubs	40,322
St. Louis Cardinals	47,012
San Francisco Giants	41,923
Texas Rangers	38,265
Toronto Blue Jays	24,287

1. If attendance at the Blue Jays' next 25 games is the same, what will the total attendance be?
2. The Texas Rangers hoped their attendance would be 1.2 times greater than the actual number of people attending their game. How many people did the Rangers hope would come to the game?
3. The Cardinals want to split their fans into 16 equal sections. How many people would sit in each section? How many people would have to sit in an overflow section?
4. Using the table, create your own word problem using multiplication and/or division. Show the solution.
5. There are 3,756 adults with cars living in Southville. Each adult drives an average of 16.2 miles each day. If the average car gets per 22.4 miles gallon, how many gallons a day do these drivers use?
6. Is 100 a reasonable estimate for  $52.3 \times 18.4$ ? Why or why not?
7. During peak season, staying at hotels in a resort area average \$179.95 per night. If a family wants to stay for 12 days, what will they spend?

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# Solve Word Problems



*After you solve a word problem, reread the original problem to see if your answer makes sense.*

**Directions:** Solve. Show your work. Use the information in the following paragraph to answer questions 1 and 2.

Every 10 years the United States conducts a census. There are a lot of interesting facts to learn from the information that is gathered. For example, the average person earns \$27,607, and women live to an average age of 79 years. There is also an average of one doctor for every 391 people.

1. Men can be expected to live about 0.924 as long as women. How long do most men live?
  
2. In a city of 879,326 people, about how many doctors can you expect to find?
  
3. If Jeff goes to the gym every 3 days and Samantha works out at the gym every 8 days, how many times will they be in the gym together during a 60 day period?
  
4. Did you know that light travels at an amazing speed of 186,000 miles per second. How far does light travel in 14 seconds?
  
5. Most people think that all even numbers are composite numbers, but this isn't true. Which even number is a prime number? Explain your answer.

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# Review Multiplication and Division



*Mastering multiplication and division will help you with the rest of this book. Keep practicing and move on!*

**Directions:** Find the product or quotient.

**a**

1.  $1,569 \times 7 =$

2.  $338.72 \times 9.73 =$

3.  $510,565 \times 42 =$

4.  $78,435 \times 622 =$

5.  $9,681,734 \times 44 =$

6.  $24,189 \times 3.97 =$

7.  $425 \times 139 =$

8.  $825.953 \times 0.4 =$

**b**

$478,182 \div 15 =$

$429,635 \div 83 =$

$69,244 \div 7.6 =$

$87,626 \div 57 =$

$15,098 \div 3.72 =$

$3,337,011 \div 24 =$

$9,341 \div 6.5 =$

$7,168,424 \div 6 =$

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# Review Multiplication and Division



*Did you ever think you'd learn so much? You've made a real accomplishment!*

**Directions:** List the factors of each number.

a	b
1. 100 _____	60 _____
2. 36 _____	80 _____
3. 150 _____	64 _____
4. 48 _____	175 _____
5. 90 _____	24 _____

**Directions:** Write *P* for *prime* or *C* for *composite* next to each number.

a	b	c
6. 2	4	9
7. 137	121	141
8. 25	27	29
9. 169	173	196
10. 51	59	63

**Directions:** Write *T* for *true* or *F* for *false* next to each statement.

11. All even numbers are composite.
12. The number 15 has more factors than the number 20.
13. One of the multiples of 14 is 56.
14. The product of  $4.53 \times 1.8$  is greater than the product of  $5.35 \times 1.6$

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# Find Equivalent Fractions



To find an equivalent fraction, multiply or divide the numerator and denominator by the same number.

$$\frac{2}{3} \times \frac{3}{3} = \frac{6}{9}$$

$$\frac{2}{3} = \frac{6}{9}$$

$$\frac{8}{10} \div \frac{2}{2} = \frac{4}{5}$$

$$\frac{8}{10} = \frac{4}{5}$$

**Directions:** Write two equivalent fractions for each.

a	b	c
1. $\frac{4}{9}$	$\frac{30}{60}$	$\frac{2}{3}$
2. $\frac{8}{20}$	$\frac{9}{12}$	$\frac{4}{5}$
3. $\frac{6}{7}$	$\frac{32}{40}$	$\frac{24}{32}$
4. $\frac{45}{60}$	$\frac{1}{2}$	$\frac{48}{56}$

**Directions:** Are the fractions equivalent? Write *Y* for yes or *N* for no. If no, write a correct answer.

a	b
5. $\frac{1}{2} = \frac{4}{8}$ _____	$\frac{9}{15} = \frac{3}{10}$ _____
6. $\frac{3}{4} = \frac{27}{36}$ _____	$\frac{6}{12} = \frac{3}{9}$ _____
7. $\frac{4}{5} = \frac{8}{12}$ _____	$\frac{32}{48} = \frac{2}{3}$ _____
8. $\frac{3}{7} = \frac{21}{35}$ _____	$\frac{42}{60} = \frac{7}{12}$ _____

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# Add Fractions with Like Denominators



*To add fractions with like denominators, add the numerators. The denominator in the sum will be the same as the denominator in the addends.*

**Directions:** Find the sum. Reduce to simplest form if necessary.

**a**

1.  $\frac{1}{3} + \frac{1}{3} =$

2.  $\frac{2}{9} + \frac{4}{9} =$

3.  $\frac{3}{5} + \frac{1}{5} =$

4.  $\frac{4}{14} + \frac{3}{14} =$

5.  $\frac{5}{8} + \frac{1}{8} =$

6.  $\frac{6}{15} + \frac{3}{15} =$

7.  $\frac{7}{10} + \frac{1}{10} =$

8.  $\frac{8}{18} + \frac{1}{18} =$

9.  $\frac{9}{25} + \frac{6}{25} =$

10.  $\frac{1}{20} + \frac{7}{20} =$

**b**

$$\frac{9}{20} + \frac{3}{20} + \frac{2}{20} =$$

$$\frac{8}{25} + \frac{5}{25} + \frac{7}{25} =$$

$$\frac{7}{15} + \frac{1}{15} + \frac{3}{15} =$$

$$\frac{6}{21} + \frac{5}{21} + \frac{3}{21} =$$

$$\frac{5}{40} + \frac{10}{40} + \frac{15}{40} =$$

$$\frac{4}{28} + \frac{8}{28} + \frac{9}{28} =$$

$$\frac{3}{24} + \frac{10}{24} + \frac{5}{24} =$$

$$\frac{2}{50} + \frac{25}{50} + \frac{3}{50} =$$

$$\frac{1}{9} + \frac{2}{9} + \frac{3}{9} =$$

$$\frac{9}{60} + \frac{12}{60} + \frac{3}{60} =$$

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# Add Fractions with Unlike Denominators



*When adding fractions with unlike denominators, find the least common denominator. Then, find equivalent fractions with like denominators, and add.*

**Directions:** Find the sum. Reduce to simplest form if necessary.

**a**

1.  $\frac{9}{16} + \frac{1}{10} =$

2.  $\frac{4}{12} + \frac{2}{8} =$

3.  $\frac{7}{14} + \frac{3}{7} =$

4.  $\frac{6}{16} + \frac{2}{5} =$

5.  $\frac{5}{18} + \frac{5}{9} =$

6.  $\frac{4}{8} + \frac{6}{15} =$

7.  $\frac{3}{9} + \frac{7}{12} =$

8.  $\frac{2}{10} + \frac{8}{15} =$

9.  $\frac{1}{12} + \frac{9}{30} =$

10.  $\frac{9}{14} + \frac{1}{20} =$

**b**

$$\frac{2}{10} + \frac{1}{15} + \frac{9}{20} =$$

$$\frac{4}{12} + \frac{2}{6} + \frac{7}{24} =$$

$$\frac{1}{14} + \frac{3}{8} + \frac{2}{9} =$$

$$\frac{4}{16} + \frac{2}{8} + \frac{3}{12} =$$

$$\frac{1}{4} + \frac{5}{9} + \frac{1}{10} =$$

$$\frac{2}{6} + \frac{4}{10} + \frac{2}{30} =$$

$$\frac{3}{9} + \frac{5}{12} + \frac{4}{18} =$$

$$\frac{7}{35} + \frac{8}{14} + \frac{6}{70} =$$

$$\frac{9}{20} + \frac{4}{16} + \frac{8}{40} =$$

$$\frac{1}{25} + \frac{1}{3} + \frac{1}{15} =$$

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# Subtract Fractions with Like Denominators



*To subtract fractions with like denominators, subtract the numerators.  
The denominators do not change.*

**Directions:** Find the difference.

a	b	c
1. $\frac{7}{10} - \frac{3}{10} =$	$\frac{17}{20} - \frac{5}{20} =$	$\frac{15}{24} - \frac{9}{24} =$
2. $\frac{6}{14} - \frac{2}{14} =$	$\frac{10}{15} - \frac{5}{15} =$	$\frac{3}{4} - \frac{1}{4} =$
3. $\frac{8}{25} - \frac{3}{25} =$	$\frac{15}{20} - \frac{10}{20} =$	$\frac{4}{5} - \frac{1}{5} =$
4. $\frac{5}{30} - \frac{1}{30} =$	$\frac{20}{25} - \frac{5}{25} =$	$\frac{5}{6} - \frac{3}{6} =$
5. $\frac{7}{18} - \frac{3}{18} =$	$\frac{25}{30} - \frac{7}{30} =$	$\frac{6}{7} - \frac{2}{7} =$

**Directions:** Is the difference correct? If not, write the correct answer.

a	b
6. $\frac{45}{50} - \frac{30}{50} = \frac{3}{10}$	$\frac{9}{14} - \frac{2}{14} = \frac{1}{2}$
7. $\frac{40}{60} - \frac{5}{60} = \frac{1}{2}$	$\frac{4}{16} - \frac{2}{16} = \frac{1}{4}$
8. $\frac{50}{65} - \frac{10}{65} = \frac{8}{13}$	$\frac{6}{18} - \frac{3}{18} = \frac{1}{8}$
9. $\frac{55}{70} - \frac{20}{70} = \frac{1}{2}$	$\frac{8}{20} - \frac{4}{20} = \frac{1}{5}$
10. $\frac{60}{75} - \frac{25}{75} = \frac{7}{10}$	$\frac{10}{22} - \frac{5}{22} = \frac{2}{11}$
11. $\frac{65}{80} - \frac{10}{80} = \frac{2}{3}$	$\frac{12}{24} - \frac{6}{24} = \frac{1}{4}$

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# Subtract Fractions with Unlike Denominators



To subtract fractions with unlike denominators, find the least common denominator. Then find equivalent fractions with like denominators, and subtract.

**Directions:** Find the difference. Reduce to simplest form if necessary.

a	b	c
1. $\frac{9}{15} - \frac{2}{5} =$	$\frac{18}{20} - \frac{2}{5} =$	$\frac{9}{10} - \frac{2}{3} =$
2. $\frac{8}{16} - \frac{1}{4} =$	$\frac{21}{22} - \frac{8}{33} =$	$\frac{17}{20} - \frac{1}{3} =$
3. $\frac{7}{18} - \frac{1}{3} =$	$\frac{17}{24} - \frac{5}{12} =$	$\frac{27}{30} - \frac{2}{6} =$
4. $\frac{6}{12} - \frac{1}{2} =$	$\frac{19}{26} - \frac{1}{2} =$	$\frac{35}{40} - \frac{3}{10} =$
5. $\frac{5}{9} - \frac{1}{5} =$	$\frac{25}{28} - \frac{2}{7} =$	$\frac{42}{50} - \frac{4}{25} =$
6. $\frac{10}{20} - \frac{2}{12} =$	$\frac{21}{30} - \frac{24}{45} =$	$\frac{51}{60} - \frac{5}{15} =$
7. $\frac{12}{25} - \frac{3}{10} =$	$\frac{1}{2} - \frac{1}{3} =$	$\frac{62}{70} - \frac{6}{20} =$
8. $\frac{14}{30} - \frac{4}{20} =$	$\frac{3}{4} - \frac{1}{5} =$	$\frac{75}{80} - \frac{7}{16} =$
9. $\frac{16}{35} - \frac{2}{7} =$	$\frac{5}{6} - \frac{2}{5} =$	$\frac{84}{90} - \frac{8}{30} =$
10. $\frac{18}{40} - \frac{1}{8} =$	$\frac{6}{13} - \frac{1}{5} =$	$\frac{77}{85} - \frac{9}{10} =$

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# Positive and Negative Fractions



*The signs of the fractions affect whether the sum or difference is positive or negative.*

Adding two positive fractions results in a positive sum.

Adding two negative fractions results in a negative sum.

When subtracting fractions with like signs, change the sign of the smaller fraction and then add.

When subtracting fractions with different signs, find the difference and use the sign of the larger fraction.

**Directions:** Find the sum or difference. Simplify if necessary.

**a**

1.  $+\frac{3}{5} - \frac{1}{4} =$

2.  $-\frac{4}{6} + \frac{3}{5} =$

3.  $+\frac{5}{7} - \frac{1}{8} =$

4.  $-\frac{9}{10} + \frac{5}{6} =$

5.  $+\frac{2}{3} - \frac{5}{8} =$

6.  $-\frac{10}{15} + \frac{4}{5} =$

7.  $+\frac{20}{25} - \frac{1}{5} =$

8.  $-\frac{9}{18} + \frac{2}{3} =$

**b**

$-\frac{6}{7} + \frac{1}{6} =$

$+\frac{12}{14} - \frac{3}{4} =$

$-\frac{15}{20} + \frac{2}{4} =$

$+\frac{8}{9} - \frac{2}{3} =$

$-\frac{6}{12} + \frac{1}{2} =$

$+\frac{14}{18} - \frac{5}{9} =$

$-\frac{9}{10} - \frac{1}{5} =$

$+\frac{1}{2} - \frac{7}{8} =$

**c**

$+\frac{3}{4} - \frac{1}{2} =$

$-\frac{18}{32} + \frac{1}{8} =$

$+\frac{20}{30} - \frac{2}{5} =$

$-\frac{9}{12} - \frac{1}{3} =$

$+\frac{8}{16} + \frac{5}{8} =$

$-\frac{3}{8} - \frac{1}{6} =$

$+\frac{40}{45} + \frac{3}{15} =$

$-\frac{6}{20} - \frac{7}{10} =$

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# Multiply Fractions



To multiply fractions, multiply the numerators and then multiply the denominators.

a

1.  $\frac{9}{12} \times \frac{1}{2}$  —  $\frac{1}{3} \times \frac{2}{5}$
2.  $\frac{8}{19} \times \frac{2}{7}$  —  $\frac{7}{22} \times \frac{4}{12}$
3.  $\frac{7}{26} \times \frac{3}{9}$  —  $\frac{1}{4} \times \frac{2}{10}$
4.  $\frac{6}{24} \times \frac{4}{10}$  —  $\frac{8}{32} \times \frac{5}{12}$
5.  $\frac{5}{22} \times \frac{5}{11}$  —  $\frac{2}{8} \times \frac{1}{2}$
6.  $\frac{4}{20} \times \frac{6}{14}$  —  $\frac{5}{25} \times \frac{7}{15}$
7.  $\frac{3}{18} \times \frac{7}{18}$  —  $\frac{3}{6} \times \frac{2}{5}$
8.  $\frac{2}{17} \times \frac{8}{22}$  —  $\frac{1}{8} \times \frac{1}{3}$
9.  $\frac{1}{16} \times \frac{9}{26}$  —  $\frac{2}{17} \times \frac{3}{9}$
10.  $\frac{9}{15} \times \frac{1}{25}$  —  $\frac{2}{3} \times \frac{2}{30}$

b

- $\frac{4}{9} \times \frac{2}{3}$  —  $\frac{5}{8} \times \frac{3}{4}$
- $\frac{5}{10} \times \frac{1}{6}$  —  $\frac{1}{3} \times \frac{1}{7}$
- $\frac{6}{11} \times \frac{1}{7}$  —  $\frac{1}{2} \times \frac{1}{8}$
- $\frac{7}{12} \times \frac{1}{8}$  —  $\frac{2}{3} \times \frac{1}{5}$
- $\frac{8}{13} \times \frac{1}{9}$  —  $\frac{3}{5} \times \frac{1}{10}$
- $\frac{9}{14} \times \frac{1}{10}$  —  $\frac{4}{7} \times \frac{1}{9}$
- $\frac{10}{15} \times \frac{2}{6}$  —  $\frac{2}{3} \times \frac{1}{5}$
- $\frac{9}{10} \times \frac{3}{6}$  —  $\frac{4}{5} \times \frac{1}{2}$
- $\frac{8}{9} \times \frac{4}{7}$  —  $\frac{7}{8} \times \frac{5}{7}$
- $\frac{7}{8} \times \frac{5}{9}$  —  $\frac{6}{9} \times \frac{3}{5}$

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# Multiply Mixed Numbers



*To multiply mixed numbers, change them to improper fractions.*

**Directions:** Find the product. Simplify if necessary.

**a**

1.  $5\frac{2}{5} \times 1\frac{2}{9} =$

2.  $3\frac{1}{3} \times 4\frac{3}{8} =$

3.  $6\frac{1}{2} \times 5\frac{2}{3} =$

4.  $7\frac{1}{9} \times 2\frac{1}{5} =$

5.  $8\frac{4}{9} \times 3\frac{7}{10} =$

6.  $9\frac{3}{7} \times 4\frac{1}{2} =$

7.  $1\frac{2}{8} \times 5\frac{4}{5} =$

8.  $2\frac{5}{9} \times 9\frac{1}{3} =$

**b**

$2\frac{1}{2} \times 9\frac{5}{20} =$

$4\frac{3}{4} \times 8\frac{4}{18} =$

$6\frac{5}{6} \times 7\frac{3}{16} =$

$8\frac{7}{8} \times 6\frac{2}{14} =$

$1\frac{9}{18} \times 5\frac{1}{10} =$

$3\frac{2}{16} \times 4\frac{9}{30} =$

$5\frac{4}{14} \times 3\frac{8}{25} =$

$7\frac{6}{12} \times 2\frac{7}{20} =$

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# Divide Fractions



*When dividing fractions, invert the divisor and then multiply.*

**Directions:** Find the quotient. Simplify if necessary.

**a**

1.  $\frac{5}{20} \div \frac{2}{10} =$

2.  $\frac{4}{18} \div \frac{4}{9} =$

3.  $\frac{3}{16} \div \frac{6}{8} =$

4.  $\frac{2}{12} \div \frac{8}{10} =$

5.  $\frac{1}{10} \div \frac{9}{10} =$

6.  $\frac{9}{30} \div \frac{8}{9} =$

7.  $\frac{8}{28} \div \frac{7}{8} =$

8.  $\frac{7}{24} \div \frac{6}{7} =$

**b**

$$\frac{9}{12} \div \frac{1}{2} =$$

$$\frac{8}{10} \div \frac{2}{3} =$$

$$\frac{7}{9} \div \frac{3}{4} =$$

$$\frac{6}{8} \div \frac{4}{5} =$$

$$\frac{5}{7} \div \frac{5}{7} =$$

$$\frac{4}{6} \div \frac{6}{9} =$$

$$\frac{3}{5} \div \frac{7}{10} =$$

$$\frac{2}{4} \div \frac{8}{12} =$$

**c**

$$\frac{2}{5} \div \frac{6}{7} =$$

$$\frac{4}{6} \div \frac{8}{10} =$$

$$\frac{6}{7} \div \frac{9}{10} =$$

$$\frac{8}{9} \div \frac{12}{16} =$$

$$\frac{10}{12} \div \frac{14}{20} =$$

$$\frac{12}{16} \div \frac{6}{12} =$$

$$\frac{14}{20} \div \frac{9}{10} =$$

$$\frac{16}{22} \div \frac{2}{5} =$$

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# Divide Mixed Numbers



*To divide mixed numbers, first change each mixed number to an improper fraction. Invert the divisor before multiplying.*

**Directions:** Find the quotient. Simplify if necessary.

**a**

1.  $4\frac{1}{5} \div 2\frac{1}{8} =$

2.  $7\frac{5}{6} \div 4 =$

3.  $9\frac{9}{14} \div 6 =$

4.  $1\frac{7}{12} \div 8 =$

5.  $5\frac{3}{10} \div 1\frac{1}{2} =$

6.  $5\frac{1}{2} \div 3\frac{5}{8} =$

7.  $2\frac{2}{3} \div 5\frac{2}{5} =$

8.  $4\frac{7}{8} \div 7\frac{4}{9} =$

**b**

$5\frac{3}{9} \div 6\frac{1}{3} =$

$6\frac{5}{18} \div 3\frac{1}{4} =$

$7\frac{1}{14} \div 2\frac{5}{6} =$

$8\frac{3}{4} \div 1\frac{1}{2} =$

$9\frac{8}{14} \div 2\frac{2}{6} =$

$10\frac{3}{10} \div 3\frac{4}{5} =$

$1\frac{1}{12} \div 4\frac{1}{10} =$

$2\frac{1}{5} \div 3\frac{8}{9} =$

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# Multiply and Divide Negative Fractions



*Remember what you learned about multiplying and dividing positive and negative integers when performing these operations with fractions.*

As with integers, multiplying two negative fractions results in a positive product.

$$\begin{array}{c} \times \frac{1}{2} \times \frac{1}{3} = \frac{1}{6} \\ \times \frac{1}{2} \times \frac{1}{3} = \frac{1}{6} \end{array}$$

Dividing negative fractions results in a positive quotient.

$$\begin{array}{c} \times \frac{5}{8} \times \frac{3}{4} = \frac{5}{8} \times \frac{4}{3} = \frac{20}{24} = \frac{5}{6} \\ \times \frac{5}{8} \times \frac{3}{4} = \frac{5}{8} \times \frac{4}{3} = \frac{20}{24} = \frac{5}{6} \end{array}$$

Fractions with mixed signs result in negative products and quotients.

**Directions: Find the product or quotient. Simplify if necessary.**

**a**

1.  $-\frac{1}{5} \times \frac{20}{30} =$

**b**

$+\frac{9}{20} \div \frac{1}{2} =$

2.  $+\frac{1}{8} \times \frac{3}{4} =$

$\times \frac{1}{2} \div \frac{18}{20} =$

3.  $+\frac{8}{18} \times \frac{2}{3} =$

$\times \frac{3}{7} \times \frac{4}{5} =$

4.  $\times \frac{1}{3} \times \frac{16}{18} =$

$\times \frac{7}{16} \div \frac{3}{4} =$

5.  $+\frac{5}{6} \div \frac{5}{6} =$

$\times \frac{2}{7} \div \frac{14}{15} =$

6.  $\times \frac{6}{14} \times \frac{4}{5} =$

$\times \frac{7}{9} \times \frac{6}{7} =$

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# Multiply and Divide Fractions by Exponents



*To multiply or divide fractions by a number with an exponent, you must first convert the number with an exponent to a whole number.*

**Directions:** Find the product or quotient.  
Simplify if necessary.

**a**

1.  $\frac{9}{20} \times 2^2 =$

2.  $12^1 \div \frac{8}{18} =$

3.  $\frac{7}{16} \div 3^2 =$

4.  $2^4 \div \frac{10}{14} =$

5.  $\frac{5}{12} \times 4^2 =$

6.  $4^3 \div \frac{5}{9} =$

7.  $\frac{3}{9} \times 5^3 =$

8.  $7^3 \div \frac{6}{15} =$

**b**

$$9^2 \div \frac{1}{2} =$$

$$\frac{6}{18} \times 3^3 =$$

$$8^3 \div \frac{2}{3} =$$

$$\frac{8}{9} \times 8^4 =$$

$$7^2 \div \frac{3}{4} =$$

$$\frac{6}{14} \times 9^4 =$$

$$6^3 \div \frac{4}{5} =$$

$$\frac{5}{7} \times 10^2 =$$

**c**

$$\frac{3}{10} \times 2^4 =$$

$$5^2 \div \frac{3}{8} =$$

$$\frac{3}{4} \times 10^3 =$$

$$3^4 \div \frac{2}{3} =$$

$$\frac{8}{12} \times 4^4 =$$

$$8^2 \div \frac{1}{8} =$$

$$\frac{5}{6} \times 7^4 =$$

$$9^3 \div \frac{2}{5} =$$

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# Solve Word Problems



*It may help you to analyze the way the numbers in a problem are connected before you choose the operations to use.*

**Directions: Solve.**

1. If Phyllis jogged  $2\frac{1}{2}$  miles each day last week, how many miles did she jog?
2. Mike is 58 inches tall. If this is  $\frac{7}{8}$  as tall as Jim, how tall is Jim to the nearest inch?
3. Mary studied  $\frac{1}{2}$  an hour on Monday and  $\frac{5}{6}$  an hour Tuesday. How much longer did Mary study on Tuesday?
4. Pat uses  $3\frac{1}{2}$  cups of sugar to make a pie. How many pies can be made from 15 cups of sugar?
5. Mr. Klein's class made a large batch of trail mix for the school fundraiser. If they made 30 cups of the mix and plan to sell it in  $\frac{5}{8}$  cup bags, how many bags can they sell?

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# Solve Word Problems



*When you've finished solving a word problem take the time to check your computations to make sure they're accurate.*

**Directions: Solve.**

1. On Friday, it snowed  $3\frac{1}{2}$  inches and on Saturday it snowed  $4\frac{3}{4}$  inches. What was the total snowfall for the two days?
2. If a  $37\frac{1}{2}$  ounce jar of jelly costs \$9.00, how much does the jelly cost per ounce?
3. Which is greater, the product of  $-\frac{4}{9} \times -\frac{5}{7}$  or the quotient of  $-\frac{2}{3} \div -\frac{4}{5}$ ?
4. Janee spent  $\frac{4}{5}$  of her allowance on a DVD player. Her sister spent  $\frac{10}{15}$  of her allowance on clothing. Did they spend the same portion of their allowances?
5. Carlos spends 3 hours on homework each night. He spends  $\frac{1}{4}$  of his time on Math,  $\frac{1}{3}$  on Social Studies,  $\frac{1}{6}$  on Science, and  $\frac{2}{8}$  on Language Arts. Which two subjects does he spend an equal amount of time working on? How much time does Carlos spend working on each subject?
6. Twenty minutes before the school play,  $\frac{4}{9}$  of the auditorium was full. Ten minutes later,  $\frac{7}{8}$  of the auditorium seats were occupied. What fraction of the people arrived during those 10 minutes?

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# Review Fractions



*Can you believe how much you've learned about fractions? Time for a little practice to stay sharp!*

**Directions:** Are the sums or differences correct? Write **Y** for yes or **N** for no. If no, write the correct answer.

**a**

1.  $3\frac{1}{8} + 2\frac{3}{4} = 5\frac{7}{8}$

2.  $6\frac{5}{9} - 1\frac{1}{4} = 5\frac{11}{36}$

3.  $4\frac{4}{5} + 2\frac{1}{3} = 6\frac{2}{15}$

4.  $8\frac{2}{3} - 5\frac{3}{8} = 2\frac{7}{8}$

5.  $7\frac{5}{6} + 5\frac{7}{8} = 12\frac{7}{8}$

**b**

$8\frac{7}{10} - 3\frac{1}{2} = 5\frac{1}{10}$

$3\frac{8}{9} + 4\frac{9}{10} = 8\frac{2}{3}$

$7\frac{2}{5} - 1\frac{1}{3} = 6\frac{1}{15}$

$8\frac{5}{7} + 7\frac{5}{8} = 15\frac{5}{7}$

$10\frac{7}{9} \times 6\frac{1}{4} = 4\frac{5}{12}$

**Directions:** Compare the products or quotients using **<** or **>**.

**a**

6.  $\frac{2}{3} \times \frac{3}{4}$  —  $\frac{1}{2} \times \frac{4}{5}$

7.  $4\frac{3}{10} \div 2\frac{1}{2}$  —  $4\frac{2}{10} \div 2\frac{1}{3}$

**b**

$\frac{7}{10} \times \frac{3}{5}$  —  $\frac{6}{10} \times \frac{4}{5}$

$\frac{3}{8} \div \frac{4}{7}$  —  $\frac{4}{7} \div \frac{3}{8}$

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# Review Fractions



*It's time for one more workout before moving on to the next unit.*

**Directions: Solve.**

**a**

1.  $\frac{4}{9} + \frac{5}{8} + \frac{2}{3} =$

2.  $-4\frac{1}{4} - 3\frac{1}{3} =$

3.  $\frac{4}{7} - \frac{3}{8} - \frac{1}{2} =$

4.  $7\frac{5}{9} \div 3\frac{1}{6} =$

5.  $\frac{7}{10} + \frac{3}{7} + \frac{4}{5} =$

**b**

$$\frac{1}{2} \times 3\frac{1}{5} =$$

$$6\frac{1}{2} \div 3^3 =$$

$$4\frac{1}{9} + 5\frac{5}{6} =$$

$$8\frac{2}{3} - 5\frac{5}{7} =$$

$$\frac{15}{32} - 1\frac{3}{8} =$$

**c**

$$\frac{7}{10} \div \frac{3}{5} =$$

$$\frac{11}{12} + \frac{4}{5} =$$

$$-\frac{2}{3} - \frac{1}{5} =$$

$$2^4 - 5\frac{1}{8} =$$

$$3\frac{6}{7} \div -\frac{5}{9} =$$

**Directions: Answer the following questions.**

6. What are three equivalent fractions for  $\frac{5}{8}$ ?

7. What are two fractions whose product is  $\frac{1}{2}$ ?

8. Would you rather have  $\frac{2}{3}$  of \$60 or  $\frac{3}{4}$  of \$50?

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# Use Order of Operations



*Order of Operations rules list the order in which to solve multi-step problems.*

To perform operations in the proper order:

- 1) Perform operations inside the parentheses.
- 2) Simplify exponents.
- 3) Perform multiplication, then division, from left to right.
- 4) Perform addition or subtraction from left to right.

$$5 \times 8(10 - 3) + 4^2 =$$

$$5 \times 8(7) + 16 =$$

$$40 \times 7 + 16 = 280 + 16$$

$$280 + 16 = 296$$

**Directions:** Are the solutions correct? Write **Y** for yes or **N** for no. If no, write the correct answer.

1.  $8 \times (10 + 40) = 120$

2.  $3^2 \times 5 - 20 \div 2 = 30$

3.  $18 - 3 \times 6 = 0$

4.  $85 - 15 \times 4 = 280$

5.  $9 \times 9 - 18 \div 2 = 9$

6.  $8^2 \div 4 - 6 \times 3 = 30$

7.  $5 + 7 \times 6 = 47$

8.  $(42 - 2) \div 2(4 + 6) = 2$

9.  $7^2 \times 4 - 6 \div 2 = 193$

10.  $5^2 \div 5 - 3 \times 2 = 4$

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# Write Equations

*Equations are mathematical sentences. An equation represents two amounts that are equal.*

The sum of two times a number and 7 is 27.

This is represented by the equation  $2x + 7 = 27$

---

**Directions: Write an equation for each.**

1. When 5 is subtracted from one fourth of a number, the result is 2.
2. When 35 is subtracted from a number, the result is 62.
3. When 500 is divided by a number, the result is 25.
4. When 4 is added to 6 times a number, the sum is 52.
5. One fifth of the difference of 30 and a number is 2.
6. The sum of a number raised to the third power and 9 is 36.
7. Five times a number is 75.
8. The difference between 89 and a number is 38.
9. When a number is divided by 4, the quotient is 16.
10. The quotient of 200 and a number is 4.

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# Solve Equations



*To solve equations, you must find a value for the variable that makes both sides of the equation equal.*

Use inverse operations to isolate the variable.

$$x - 15 = 40$$

$$x = 40 + 15$$

$$x = 55$$

$$6n = 96$$

$$n = 96 \div 6$$

$$n = 16$$

**Directions:** Solve these equations.

**a**

1.  $\frac{y}{7} = 30$

2.  $\frac{90}{y} = 2$

3.  $4L = 100$

4.  $8q = 96$

5.  $y - 55 = 70$

6.  $n - 87 = 32$

**b**

$$80 + z = 93$$

$$75 - x = 28$$

$$16 + f = 62$$

$$79 + a = 85$$

$$\frac{c}{36} = 3$$

$$120 - q = 82$$

**c**

$$3z = 60$$

$$4m = 600$$

$$m - 20 = 48$$

$$150 - m = 60$$

$$\frac{15}{c} = 5$$

$$3r = 75$$

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# Solve Equations



*Solving equations is not difficult. Let's give it a try!*

**Directions:** Are the solutions to these equations correct? Write **Y** for yes and **N** for no. If no, write the correct answer.

1.  $z - 12 = 7$        $z = 19$

2.  $3q + 5 = 26$        $q = 6$

3.  $2b = 10$        $b = 5$

4.  $\frac{y}{2} = 8$        $y = 2$

5.  $-3 + c = 12$        $c = 15$

6.  $7 + 4m = 19$        $m = 4$

7.  $4z + 1 = 21$        $z = 5$

8.  $9 + \frac{L}{4} = 19$        $L = 36$

9.  $p - 10 = 25$        $p = 35$

10.  $16d = 48$        $d = 3$

11.  $8 + 6n = 38$        $n = 6$

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# Simplify Equations Using Properties



*Some equations have two or more variables on one side.*

**Directions: Solve.**

**a**

1.  $2b + 3b = 90$

2.  $80 = 4y + 3y + y$

3.  $60 = 9z - z - 33z$

4.  $5w + w + 7 = 37$

5.  $8q - 4q + 6 = 32$

6.  $30 = 8m + m + 12$

7.  $4 = 7c - 4c - 8$

8.  $65 + 8s - 2s = 72$

9.  $14d - 8d + 3d = 108$

10.  $3m + 9m = 48$

11.  $10f + 9f - 3f = 64$

**b**

$4x - 2x = 20$

$18 = 2b + b + 6b$

$26 = 16q - 3q$

$14x + x - 3 = 27$

$9n - n + 5 = 29$

$q + 5q + 3q = 54$

$15f - 2f - 8f = 40$

$65 = 8a + 5a$

$84 = 7n - 3n$

$2c + 5 + 4c = 41$

$15q - 9 - 8q = 40$

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# Simplify Equations Using Properties



*Some equations have variable terms on both sides. You need to isolate the variable on one side of the equation.*

Follow these steps.

$$2x + 2 = 4(x + 2)$$

$$2x + 2 = 4x + 8$$

Next, subtract  $2x$  from each side.

$$2 = 2x + 8$$

Now, subtract 8 from each side.

$$-6 = 2x$$

$$x = -3$$

**Directions: Solve.**

**a**

1.  $2x + 1 = 3(x + 2)$

2.  $2 = 2x + 8$

3.  $x - 5 = 2x - 3$

4.  $5n = 2n - 6$

5.  $5q - 4 = 3q + 4$

6.  $4d = d + 21$

7.  $48 - 7n = n$

**b**

$$2x = 4x + 8$$

$$5x = 2x + 9$$

$$7m = m - 42$$

$$7f = 4f - 12$$

$$6n + 18 = 2n - 2$$

$$8z = 2z + 30$$

$$4a - 12 = 9 - 3a$$

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# Use Functions



The relationship between two numbers or variables is a function. This can be displayed using a table.

$n$	$m$
6	3
8	4
10	5
12	6

$$\frac{n}{2} = m$$

**Directions:** What is the function shown in each table?

**a**

1.

$x$	$y$
5	10
10	20
15	30
20	40

**b**

$m$	$n$
3	1
6	2
9	3
12	4

2.

$x$	$y$
2	4
3	9
4	16
5	25

$m$	$n$
9	5
10	6
11	7
12	8

3.

$x$	$y$
10	4
12	5
14	6
16	7

$m$	$n$
6	30
5	25
4	20
3	15

4.

$x$	$y$
3	14
4	18
5	22
6	26

$m$	$n$
1	5
3	17
5	29
7	41

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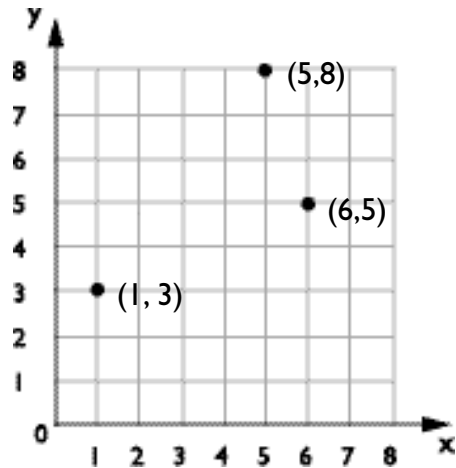
# Use Coordinate Grids



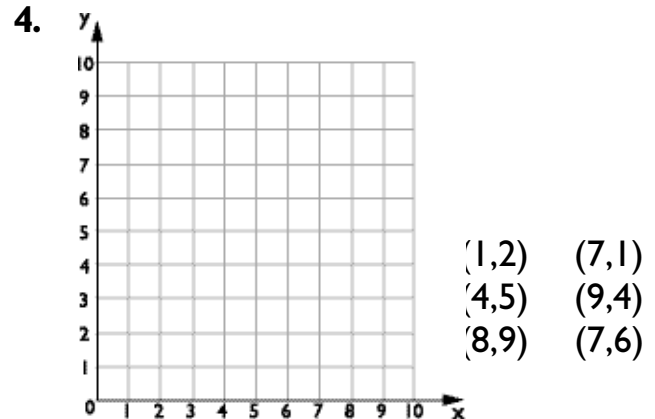
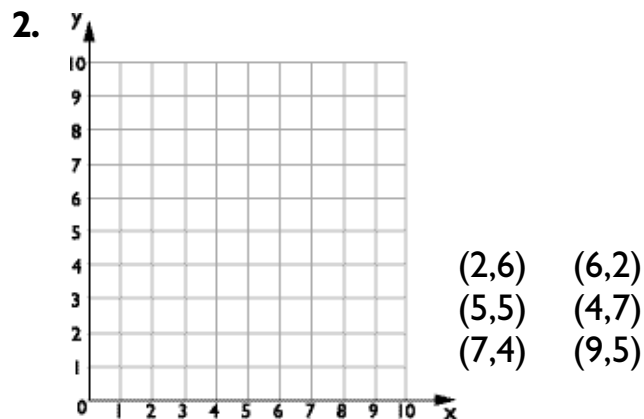
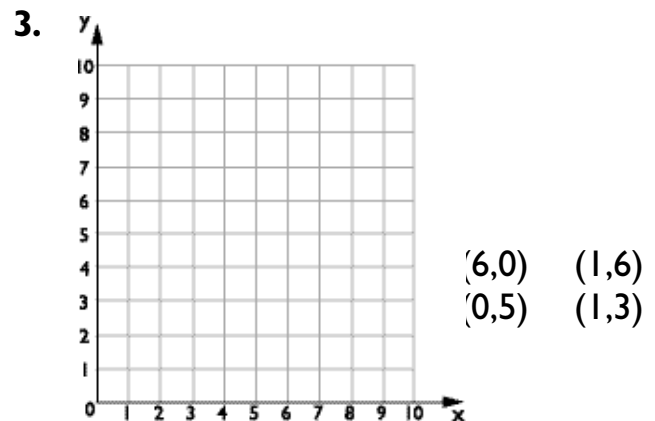
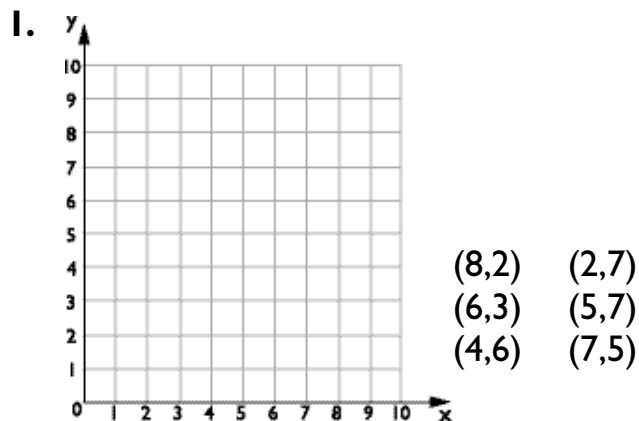
Each point on a coordinate grid is located by using ordered pairs of numbers. You can locate any point by following a few simple rules.

The first number tells how far to move on the x-axis (horizontally).

The second number tells how far to move on the y-axis (vertically)



**Directions:** Graph and label these points on the coordinate grid.



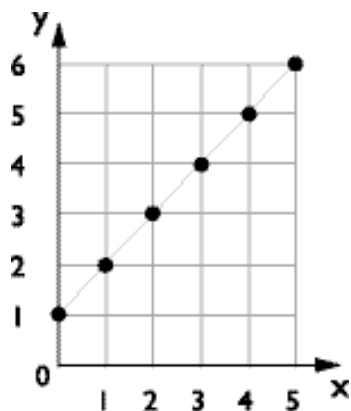
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# Graph Functions



Functions can be shown on a coordinate grid. Just remember what you learned about graphing ordered pairs.

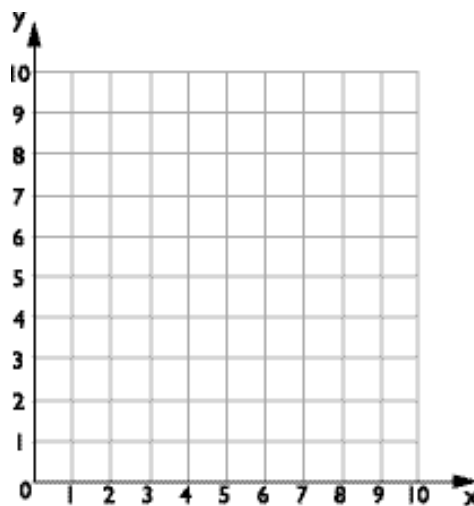


$$x + 1 = y$$

**Directions:** Create graphs for the functions shown below.

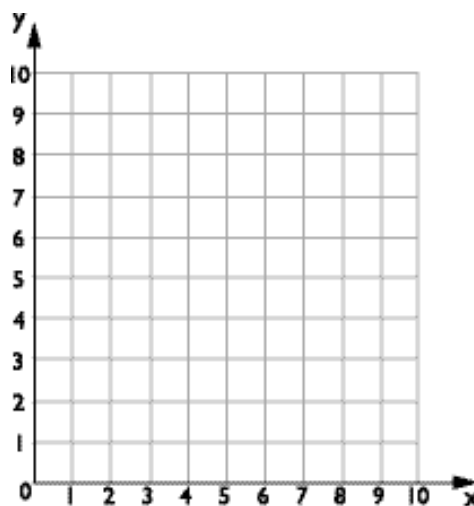
1.  $y + 2 = x$

x	y



2.  $2x - 3 = y$

x	y



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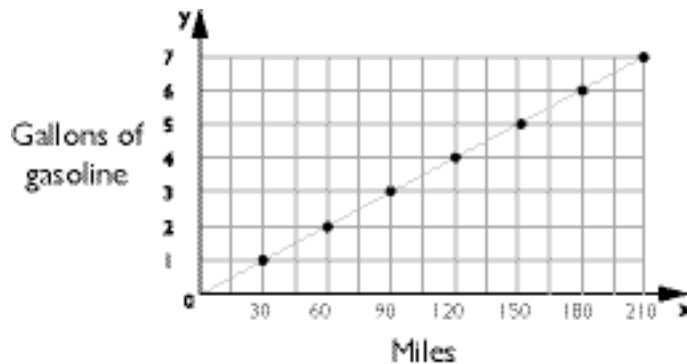
# Graph Rates



Rates can be graphed using ratios. An example of a rate is miles per gallon.

A car gets 30 miles per gallon. How many gallons of gasoline will it use to travel 150 miles?

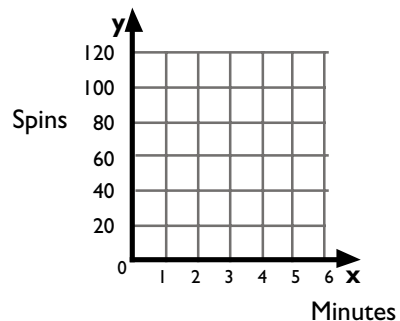
$$\frac{1}{30} = \frac{?}{150} = \frac{5}{150}$$



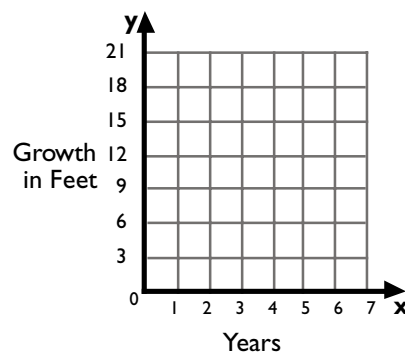
The car will use 5 gallons of gasoline.

**Directions:** Graph the following rates.

1. A wheel spins 20 times per minute for 6 minutes.



2. A tree grows 3 feet each year for 7 years.



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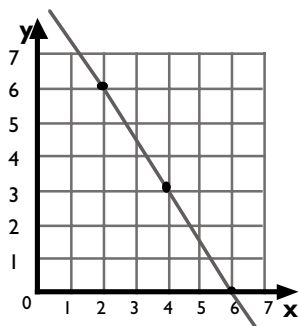
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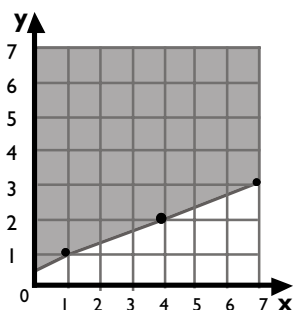
# Graph Equations and Inequalities



Graphs can be used to display equations. This makes it easy to see the solutions you have just computed.



$$3x + 2y = 18$$

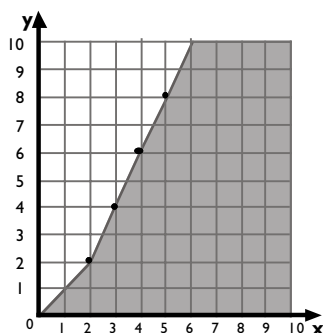


Graphs can also be used to display inequalities. The shaded area fits the inequality.

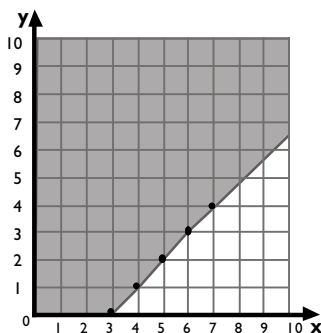
$$x < 3y - 2$$

**Directions:** Match the graph with the inequality.

1.



3.



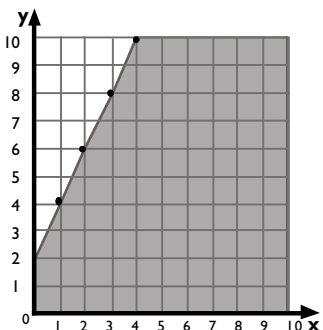
A.  $x \leq y + 3$

B.  $y \leq 2x + 2$

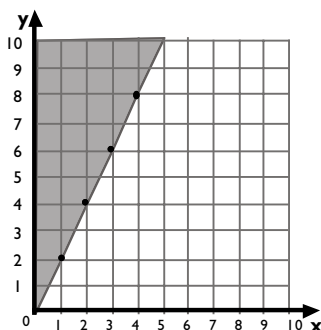
C.  $x \geq \frac{y}{2} + 1$

D.  $y \geq 2x$

2.



4.



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# Review Equations and Graphs



*It's time to see what you've learned about equations and graphs.*

**Directions:** Write *T* for *true* and *F* for *false*. If false, provide the correct answer.

**a**

- $7 + (6 \times 2) - 32 = 10$
- 16 greater than 5 times 7 is represented by  $16 \times 5 + 7 = b$
- If  $7y + 2y - 3 = 42$ ; then  $y = 4$
- If  $\frac{C}{4} = d$ , then when  $C$  is 12,  $d$  is 3.
- On a coordinate grid, a point located at (3,5) would be below and to the left of a point at (5,3).
- If a car travels at 55 miles per hour for 7 hours it will travel 385 miles.
- $3 - (18 \div 3) + (72 - 2) = 42$
- If a number is 7 less than one-fifth of 50 it can be represented by  $\frac{50}{5} - 7 = x$ .

**b**

- $(9 \times 6) \times (4 \div 2) + 82 - 17 = 145$
- One fourth of 28 plus 15 can be represented by  $\frac{28}{4} + 15 = z$
- If  $2x - 5 = 5x + 1$ ; then  $x = -3$
- If  $2x + 3 = y$ , when  $y = 13$   $x = 5$ .
- A point located at 4 on the  $x$ -axis and 2 on the  $y$ -axis would be shown as the ordered pair (4,2)
- When a wheel spins at 15 times per second it will spin 800 times in a minute.
- $5 + 9 \times 2 - (16 \div 4 + 3) = 15$
- If a number is 4 more than the square root of 25 it can be represented by  $25^2 + 4 = m$ .

Name \_\_\_\_\_

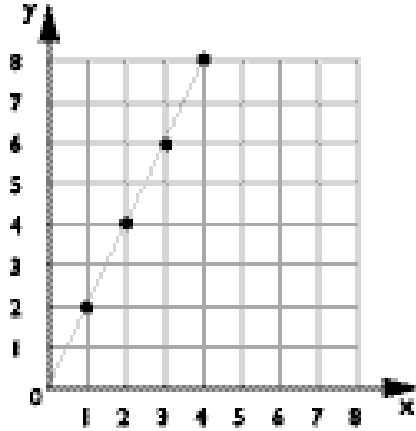
Date \_\_\_\_\_

# Review Equations and Graphs



*You're almost ready to move on. Just a little more practice.*

**Directions:** Answer the following questions.



1. What function is displayed on the graph above?
2. If  $x = 7$ , what will  $y$  be?
3. Graph at least 4 points for the equation  $2x + 2y = 14$ .
4. The slope of a line measures its steepness. Which would result in a greater slope:  
 $2y + x = 10$  or  $y = x + 2$ ?
5. Simplify and solve the equation  $5y - 2 + 2y = 4y + 10 + y$
6. What is the value of  $y$  in  $x < \frac{y}{2} + 3$  if  $x = 0$ ?
7. Write your own problem involving the order of operations and show the solution.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Time Intervals



*You use elapsed time every day to follow your busy schedule.  
Understanding elapsed time helps you in school, too.*

To find the elapsed time between 9:36 AM and 1:15 PM, count forward to the nearest full hour and then add the minutes.

**Directions: Find the finish time. Show your work.**

1. Start: 3:17 PM

70 minutes elapsed time

Finish: \_\_\_\_\_

2. Start: \_\_\_\_\_

85 minutes elapsed time

Finish: 9:28 PM

**Directions: Find the elapsed time. Show your work.**

**a**

3. 8:00 AM to 9:15 AM

4. 10:35 PM to 1:30 AM

5. 6:18 AM to 10:40 PM

6. 4:00 PM to 1:00 AM

7. 7:50 PM to 2:30 AM

**b**

1 1:30 AM to 2:20 PM

2:45 PM to 8:00 PM

7:10 AM to 12:00 PM

3:55 PM to 9:12 AM

6:05 AM to 12:03 PM

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Time Zones



*How would you like to travel one hour backward or forward in time?  
Believe it or not, you can!*

The United States is divided into 6 time zones. As you drive from west to east crossing a time zone, you can turn your clock forward one hour.



**Directions:** Solve the following problems. Explain your answer.

1. If someone left the Pacific time zone at 9 AM, flew east for 3 hours and landed in the Mountain time zone, what time did the landing take place?
2. What time would it be if a pilot left the Eastern time zone at 2 PM, flew west for 2 hours, and landed in the Central time zone?
3. Jack said if someone woke up at 8 AM in Los Angeles, it is 5 AM in New York City. Is Jack correct?
4. If a flight from Denver to Houston takes 1 1/2 hours, what time would someone have to leave Denver if they wanted to arrive in Houston at 5 PM?
5. What time would someone leave California on a 5-hour flight to Cleveland if they are to arrive at 7 PM?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Convert Temperatures



*If you take a summer trip to another country and hear the temperature is 25°, don't worry. You just need to understand the Celsius system.*

When converting from Celsius to Fahrenheit use this formula:

$$\frac{9}{5}C + 32 = F$$

To convert Fahrenheit to Celsius use this formula:

$$\frac{5}{9}F - 32 = C$$

**Directions:** Convert the following temperatures. Round to the nearest degree.

a

1. 28° F = \_\_\_\_\_ °C

2. 90°C = \_\_\_\_\_ °F

3. 0°F = \_\_\_\_\_ °C

4. 120°C = \_\_\_\_\_ °F

5. 40°F = \_\_\_\_\_ °C

b

0° C = \_\_\_\_\_ °F

30°F = \_\_\_\_\_ °C

75°C = \_\_\_\_\_ °F

50°F = \_\_\_\_\_ °C

60°C = \_\_\_\_\_ °F

c

60° F = \_\_\_\_\_ °C

80°C = \_\_\_\_\_ °F

65°F = \_\_\_\_\_ °C

45°C = \_\_\_\_\_ °F

95°F = \_\_\_\_\_ °C

**Directions:** Compare using < or >.

a

6. 100°C \_\_\_\_\_ 220°F

7. 110°F \_\_\_\_\_ 60°C

8. 50°C \_\_\_\_\_ 110°F

9. 70° F \_\_\_\_\_ 0°C

10. 30°C \_\_\_\_\_ 80°F

b

10°F \_\_\_\_\_ -20°C

20°C \_\_\_\_\_ 65°F

40°F \_\_\_\_\_ 10°C

80°C \_\_\_\_\_ 160°F

100°F \_\_\_\_\_ 15°C

c

120°C \_\_\_\_\_ 200°F

70°F \_\_\_\_\_ 8°C

85°C \_\_\_\_\_ 175°F

75°F \_\_\_\_\_ 16°C

25°C \_\_\_\_\_ 85°F

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Customary Weights



*Can you think of the different ways you use weight every day? If you understand ounces, pounds, and tons you'll have no problem.*

16 ounces (oz) = 1 pound (lb)  
2,000 pounds (lb) = 1 ton (t)

**Directions:** Find the missing number.

a

1. 64 oz = \_\_\_\_\_ lb

2. 6.5 lb = \_\_\_\_\_ oz

3. 6,600 lb = \_\_\_\_\_ t

4. 88 oz = \_\_\_\_\_ lb

5. 6.3 t = \_\_\_\_\_ lb

b

5 lb = \_\_\_\_\_ oz

24 oz = \_\_\_\_\_ lb

18 lb = \_\_\_\_\_ oz

4 oz = \_\_\_\_\_ lb

4,400 lb = \_\_\_\_\_ t

c

4 t = \_\_\_\_\_ lb

2.2 t = \_\_\_\_\_ lb

1,000 lb = \_\_\_\_\_ t

3.25 lb = \_\_\_\_\_ oz

2 t = \_\_\_\_\_ oz

**Directions:** Solve.

6. Marietta bought 12 pounds of potatoes for a barbeque. If each potato weighed 4 ounces, how many potatoes did she buy?
7. Cliff weighs 125 pounds 6 ounces and his brother Neil weighs 130 pounds 4 ounces. What is the difference in their weight?
8. Which weighs more, a cat weighing  $5\frac{1}{2}$  pounds or a cat weighing 90 ounces?
9. Four cars have a combined weight of  $6\frac{1}{2}$  tons. In pounds, what is the average weight of each car?
10. Andrea went on a diet and lost  $3\frac{3}{4}$  pounds the first week. If she weighed  $128\frac{1}{2}$  pounds after the first week, what was her original weight?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Mass



*In the metric system, mass is similar to weight, but not identical.*

1,000 milligrams (mg) = 1 gram (g)

1,000 grams = 1 kilogram (kg)

**Directions:** Find the missing numbers.

**a**

1. 20,000 mg = \_\_\_\_\_ kg

2. 6.3 kg = \_\_\_\_\_ g

3. 27 g = \_\_\_\_\_ mg

4. 1.4 kg = \_\_\_\_\_ mg

**b**

16 kg = \_\_\_\_\_ g

7.6 g = \_\_\_\_\_ mg

7,300 mg = \_\_\_\_\_ g

5.1 kg = \_\_\_\_\_ mg

**Directions:** Compare the quantities using <, >, or =.

**a**

5. 7 kg \_\_\_\_\_ 7,000 g

6. 8,000 g \_\_\_\_\_ 6 kg

7. 46,000 mg \_\_\_\_\_ 3 kg

8.  $1\frac{1}{2}$  kg \_\_\_\_\_ 1,600 g

9. 10,000 mg \_\_\_\_\_ 1 kg

10.  $8\frac{3}{4}$  g \_\_\_\_\_ 8,500 mg

11. 500 mg \_\_\_\_\_  $\frac{1}{2}$  g

**b**

9,600 mg \_\_\_\_\_ 10 g

5 kg \_\_\_\_\_ 5,000 mg

3,125 g \_\_\_\_\_  $3\frac{1}{8}$  kg

94,000 mg \_\_\_\_\_ 940 g

380 g \_\_\_\_\_ 38 mg

5,000 g \_\_\_\_\_  $5\frac{1}{10}$  kg

9.35 kg \_\_\_\_\_ 9,350 g

Name \_\_\_\_\_

Date \_\_\_\_\_



# Convert Customary and Metric Weights



*Changing between customary and metric weight is not difficult. You just need to read a few simple tables.*

To convert between weight and mass:

Weight	Mass
1 ounce	28.395 grams
1 pound	453.59 grams
1 ton	907.18 kilograms

To convert between mass and weight:

Mass	Weight
1 gram	0.03527 ounce
1 kilogram	2.2046 pounds

**Directions:** Make the following conversions. Round to the nearest whole number.

**a**

- 7 g = \_\_\_\_ oz
- 12 lb = \_\_\_\_ g
- 8 t = \_\_\_\_ kg
- 6 kg = \_\_\_\_ lb
- 48 oz = \_\_\_\_ g
- 8,000 lb = \_\_\_\_ kg
- 900 g = \_\_\_\_ lb
- 5 oz = \_\_\_\_ g
- 12,000 g = \_\_\_\_ oz
- 4,500 lb = \_\_\_\_ g

**b**

- \_\_\_\_ oz = 700 g
- \_\_\_\_ g = 10 lb
- \_\_\_\_ t = 2,000 kg
- \_\_\_\_ kg = 7,650 lb
- \_\_\_\_ oz = 6,000 g
- \_\_\_\_ lb = 3,000 g
- \_\_\_\_ g = 25 lb
- \_\_\_\_ oz = 800 g
- \_\_\_\_ g = 69 lb
- \_\_\_\_ lb = 5 kg

**c**

- 2.5 kg = \_\_\_\_ lb
- 1 t = \_\_\_\_ g
- 5,000 oz = \_\_\_\_ lb
- 66 kg = \_\_\_\_ lb
- 7 lb = \_\_\_\_ g
- 20,000 g = \_\_\_\_ lb
- 2 t = \_\_\_\_ kg
- 20 lb = \_\_\_\_ kg
- 600 g = \_\_\_\_ oz
- 5 t = \_\_\_\_ kg

Name \_\_\_\_\_

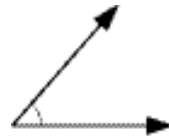
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# Identify Angles

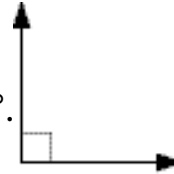


*There are angles all around us. They can be described by the number of degrees they measure.*

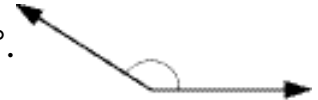
Acute angles are less than  $90^\circ$ .



Right angles form square corners and measure  $90^\circ$ .



Obtuse angles are greater than  $90^\circ$  but less than  $180^\circ$ .



Straight angles form a straight line and are  $180^\circ$ .



**Directions: Draw the following angles.**

1. obtuse
2. straight
3. acute
4. right

**Directions: Answer the following questions. Explain.**

5. Are there any acute angles greater than  $90^\circ$ ?
6. Why are all right angles the same number of degrees?
7. Explain why all straight angles are identical.
8. Explain why a book cover contains four right angles.
9. Why can't a triangle contain a straight angle?
10. Draw a quadrilateral that contains two obtuse angles.

Name \_\_\_\_\_

Date \_\_\_\_\_

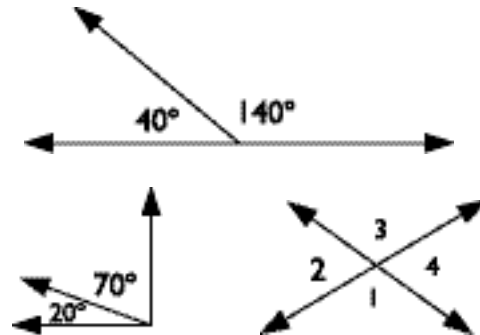
# Identify Angles



*There are other characteristics that may be used to describe angles.*

Two angles that total  $180^\circ$  are supplementary.

Two angles that total  $90^\circ$  are complementary.



When 2 lines intersect, the angles opposite each other (angles 2 and 4 and 1 and 3) are called vertical angles. Vertical angles always have the same measure as each other.

Angles 2 and 3 and 1 and 4 are next to each other and are adjacent angles. Adjacent angles total  $180^\circ$ .

**Directions:** Answer the following questions.

1. If two angles are complementary and the first angle measures  $25^\circ$ , what is the measure of the second angle?
2. If two angles are vertical angles and the first angle measures  $38^\circ$ , what is the measure of the second angle?
3. If the first angle of two supplementary angles measures  $75^\circ$ , what is the measure of the second angle?
4. Jonathan said that two adjacent angles always total  $90^\circ$ . Is Jonathan correct? Explain your answer.
5. Can all 4 angles formed by 2 intersecting lines have the same measure? Explain your answer.
6. Are all vertical angles complementary? Explain your answer.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Customary Lengths



*How tall are you? How far is it from Chicago to Baltimore? These questions can be answered using customary length.*

1 foot (ft) = 12 inches (in)

1 yard (yd) = 3 feet or 36 inches

1 mile (mi) = 5,280 feet or 1,760 yards

**Directions:** Compare the lengths using  $<$ ,  $>$ , or  $=$ .

a

b

c

1. 6 ft \_\_\_\_ 80 in

3 yds \_\_\_\_ 8 ft

5,280 ft \_\_\_\_ 1,760 yds

2. 5 mi \_\_\_\_ 27,000 ft

4 mi \_\_\_\_ 7,000 yd

500 in \_\_\_\_ 40 ft

3. 3,000 yd \_\_\_\_ 2 mi

900 yd \_\_\_\_ in

1 mi \_\_\_\_ 60,000 in

4. 95 in \_\_\_\_ 8 ft

1,000 ft \_\_\_\_ 400 yd

70 yd \_\_\_\_ 210 ft

5. 12 ft \_\_\_\_ 4 yd

60 in \_\_\_\_ 5 ft

10,000 ft \_\_\_\_  $1\frac{1}{2}$  mi

6. 100 in \_\_\_\_ 3 yd

10,000 yd \_\_\_\_ 6 mi

70 in \_\_\_\_ 20 yd

7. 10,000 ft \_\_\_\_ 2 mi

5 mi \_\_\_\_ 25,000 mi

8 mi \_\_\_\_ 50,000 ft

8. 800 ft \_\_\_\_ 900 in

20 yd \_\_\_\_ 700 in

16 yd \_\_\_\_ 480 in

9. 12,000 yd \_\_\_\_ 6 mi

2,000 ft \_\_\_\_  $\frac{1}{2}$  mi

9 in \_\_\_\_  $\frac{3}{4}$  ft

10. 200 in \_\_\_\_ 7 yd

18 in \_\_\_\_  $\frac{1}{2}$  yd

$\frac{1}{2}$  mi \_\_\_\_ 880 ft

Name \_\_\_\_\_

Date \_\_\_\_\_

# Use Metric Lengths



*People in some countries use the metric system when measuring length.  
Here are a few facts to learn.*

1,000 millimeters (mm) = 1 meter (m)

100 centimeters (cm) = 1 meter

1,000 meters = 1 kilometer

**Directions: Add or subtract.**

**a**

1.  $50 \text{ cm} + 800 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

2.  $3,000 \text{ m} + 5 \text{ km} = \underline{\hspace{2cm}} \text{ km}$

3.  $3 \text{ km} - 500 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

4.  $10,000 \text{ mm} - 80 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

5.  $600 \text{ cm} + 3 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

6.  $5,000 \text{ m} - 2 \text{ km} = \underline{\hspace{2cm}} \text{ km}$

7.  $6 \text{ km} + 900 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

8.  $50,000 \text{ mm} - 1,000 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

9.  $190 \text{ cm} + 1,000 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

10.  $1,200 \text{ m} + 2 \text{ km} = \underline{\hspace{2cm}} \text{ km}$

11.  $10,000 \text{ cm} - 50,000 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$

12.  $10 \text{ km} - 6,000 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

**b**

$4 \text{ km} - 2,500 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

$50 \text{ cm} + 500 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

$10,000 \text{ m} - 3 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

$6,000 \text{ cm} + 5 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

$900 \text{ mm} - 20 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

$6 \text{ km} - 150 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

$1 \text{ m} + 750 \text{ mm} = \underline{\hspace{2cm}} \text{ mm}$

$20,000 \text{ mm} + 14 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

$700 \text{ cm} - 3 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

$17 \text{ m} - 1,000 \text{ mm} = \underline{\hspace{2cm}} \text{ mm}$

$10 \text{ km} + 5,000 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

$40,000 \text{ cm} + 2 \text{ km} = \underline{\hspace{2cm}} \text{ km}$

Name \_\_\_\_\_

Date \_\_\_\_\_

# Convert Customary Length to Metric



*If you can read a table, you can convert between customary and metric length. Keep those tables handy!*

To convert between customary length and metric length:

Customary	Metric
1 inch	2.54 centimeters
1 foot	0.3048 meters
1 yard	0.9144 meters
1 mile	1609.3 meters

**Directions:** Convert the following. Round to the nearest whole number.

**a**

1. 16 in = \_\_\_\_ cm
2. 20 ft = \_\_\_\_ m
3. 5 mi = \_\_\_\_ m
4. 4 yd = \_\_\_\_ m
5. 18 ft = \_\_\_\_ m
6. 4 mi = \_\_\_\_ m
7. 24 in = \_\_\_\_ cm
8. 13 ft = \_\_\_\_ m
9. 9 mi = \_\_\_\_ m
10. 23 yd = \_\_\_\_ m
11. 14 ft = \_\_\_\_ m

**b**

- 19 m = \_\_\_\_ yd
- 50 cm = \_\_\_\_ ft
- 75 cm = \_\_\_\_ ft
- 4,000 m = \_\_\_\_ mi
- 33 m = \_\_\_\_ ft
- 750 m = \_\_\_\_ yd
- 300 cm = \_\_\_\_ in
- 90 m = \_\_\_\_ ft
- 10,000 m = \_\_\_\_ mi
- 900 cm = \_\_\_\_ in
- 65 m = \_\_\_\_ yd

**c**

- 800 cm = \_\_\_\_ yd
- 900 in = \_\_\_\_ m
- 400 m = \_\_\_\_ ft
- 950 ft = \_\_\_\_ m
- 1,200 cm = \_\_\_\_ ft
- 3 mi = \_\_\_\_ m
- 3,000 m = \_\_\_\_ mi
- 900 in = \_\_\_\_ m
- 60 ft = \_\_\_\_ m
- 29 yd = \_\_\_\_ cm
- 2 mi = \_\_\_\_ m

Name \_\_\_\_\_

Date \_\_\_\_\_

# Convert Metric Length to Customary



*Let's do some review.*

To convert between customary length and metric length:

<i>Metric</i>	<i>Customary</i>
<i>1 centimeter</i>	<i>0.3937 inches</i>
<i>1 meter</i>	<i>39.37 inches</i>
<i>1 kilometer</i>	<i>0.621 miles</i>

**Directions:** Are the following number sentences correct? Write *T* for *true* or *F* for *false*. If *false*, write the correct answer.

a

1. 10 cm = 3.937 in

2. 5 m = 19.685 in

3. 2 km = 1.242 mi

4. 25 cm = 99.25 in

5. 12 m = 472.44 in

6. 450 cm = 177 in

7. 0.5 m = 196.85 in

8.  $\frac{1}{2}$  km = 0.3105 mi

9. 1,000 cm = 621 in

b

$4\frac{1}{4}$  m = 2.63925 in

8 km = 4.968 mi

150 cm = 59.055 in

76 m = 30.172 in

18 km = 708.66 mi

186 cm = 7.32282 in

47 m = 0.29187 mi

16 km = 15.8976 mi

35 cm = 21.735 in

Name \_\_\_\_\_

Date \_\_\_\_\_

# Solve Word Problems



*Set up a formula to help solve word problems. Just use the numbers provided and calculate carefully!*

**Directions: Solve. Show your work.**

1. The thickest layer of the Earth is the mantle, which is about 2,900 kilometers thick. How many miles is this?
2. If a packet of seeds weighs 250 milligrams, how many packets of seeds would it take to have a combined weight of 1 kilogram?
3. What time zone do you live in? If it is 11:30 AM in your time zone, what time is it two time zones to the East?
4. Venus is the second planet from the Sun. Its surface temperature reaches about  $500^{\circ}\text{C}$ . What is this temperature in Fahrenheit?
5. The Wright Brothers' plane flew for about 100 feet in 1903. How long was their famous first flight in meters?
6. Make up your own problem to convert milligrams to pounds. Show the solution to your problem.
7. The snail was crawling at a rate of 4 inches per hour. How many centimeters would the snail crawl in 5 hours?

Name \_\_\_\_\_

Date \_\_\_\_\_



# Solve Word Problems



*To check your solution, see if you can solve the problem another way.  
If you get the same answer, you are correct!*

**Directions: Solve. Show your work.**

1. Describe how it is possible to fly from a city in the Eastern time zone on April 29 and land in a city in the Mountain time zone on April 28.
2. Light travels at 225,000 kilometers per second in water and 186,000 miles per second in air. Does it travel faster through the air or water?
3. The average amount of precipitation in one city during the month of April is  $4\frac{1}{2}$  inches. Another city receives 12.5 centimeters of precipitation during the same month. Which city receives more precipitation?
4. The Panama Canal saves ships a trip of about 7,000 miles around the tip of South America. What is this distance in kilometers?
5. On the Moon, you would weigh  $\frac{1}{6}$  your weight on Earth. If you weigh 150 pounds on Earth, what would your mass be in kilograms on the Moon?
6. If a football player gained a total of 5,300 feet in a season, did he gain more than another player who ran for 1,700 yards?
7. The average temperature of a desert is  $24^{\circ}\text{C}$ , while the average temperature of a grassland region is  $32^{\circ}\text{F}$ . What is the difference in their temperatures?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Review Measurement



*By now, you're ready to try out your skills. Give it a try and see how you do!*

**Directions:** Write *T* for *true* and *F* for *false*. If *false*, write the correct answer.

1. 4:50 AM to 1:09 PM is 8 hours 19 minutes.
2. 6:20 AM in Boston is 9:20 AM in Los Angeles.
3. 1,700 pounds is greater than  $\frac{3}{4}$  ton.
4. 8,000 grams is equivalent to 8 kilograms.
5. 5 kilograms is less than 10 pounds.
6. All right angles measure more than  $90^\circ$ .
7. Two vertical angles are always identical.
8.  $32^\circ$  Fahrenheit is equivalent to  $0^\circ$  Celsius.
9. 12 kilometers is greater than 12 miles.
10. If someone takes  $1\frac{1}{4}$  hours to finish their homework and they finish at 9:15 PM, they started at 8 PM.
11.  $100^\circ$  Celsius is less than  $212^\circ$  Fahrenheit.
12. 12,000 milligrams is greater than 1.2 kilograms.
13. 2 tons is less than 1,800 grams.
14. 5,000 yards is greater than 3 miles.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Review Measurement



*Let's try a little more practice. There will never be a measurement problem that will stump you!*

**Directions:** Make the following conversions. Round to the nearest whole number.

**a**

1.  $85^{\circ}\text{ F} = \underline{\hspace{1cm}}^{\circ}\text{ C}$

2.  $80\text{ oz} = \underline{\hspace{1cm}}\text{ lb}$

3.  $500\text{ mg} = \underline{\hspace{1cm}}\text{ g}$

4.  $4.5\text{ l lb} = \underline{\hspace{1cm}}\text{ g}$

5.  $2\text{ kg} = \underline{\hspace{1cm}}\text{ lb}$

6.  $50\text{ yd} = \underline{\hspace{1cm}}\text{ in}$

7.  $800\text{ cm} = \underline{\hspace{1cm}}\text{ m}$

**b**

$6\text{ in} = \underline{\hspace{1cm}}\text{ cm}$

$5\text{ cm} = \underline{\hspace{1cm}}\text{ in}$

$3\text{ yd} = \underline{\hspace{1cm}}\text{ m}$

$130^{\circ}\text{ C} = \underline{\hspace{1cm}}^{\circ}\text{ F}$

$20\text{ oz} = \underline{\hspace{1cm}}\text{ g}$

$3\text{ mi} = \underline{\hspace{1cm}}\text{ ft}$

$16\text{ mi} = \underline{\hspace{1cm}}\text{ in}$

**c**

$1.8\text{ t} = \underline{\hspace{1cm}}\text{ lb}$

$450\text{ g} = \underline{\hspace{1cm}}\text{ mg}$

$5\text{ g} = \underline{\hspace{1cm}}\text{ oz}$

$4\text{ ft} = \underline{\hspace{1cm}}\text{ m}$

$2.7\text{ m} = \underline{\hspace{1cm}}\text{ in}$

$63^{\circ}\text{ F} = \underline{\hspace{1cm}}^{\circ}\text{ C}$

$19\text{ km} = \underline{\hspace{1cm}}\text{ mi}$

**Directions:** Fill in the missing numbers.

8.  $4:50\text{ PM to }9:26\text{ PM} = \underline{\hspace{1cm}}\text{ hrs } \underline{\hspace{1cm}}\text{ min}$

9.  $8:42\text{ AM to }2:27\text{ PM} = \underline{\hspace{1cm}}\text{ hrs } \underline{\hspace{1cm}}\text{ min}$

10. 2 complementary angles; first angle =  $70^{\circ}$ , second angle =  $\underline{\hspace{1cm}}^{\circ}$

11.  $10:07\text{ AM to }11:03\text{ PM} = \underline{\hspace{1cm}}\text{ hrs } \underline{\hspace{1cm}}\text{ min}$

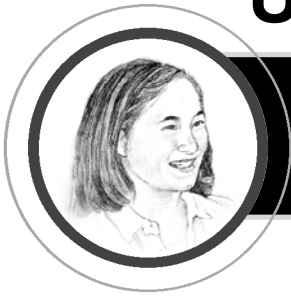
12. 2 vertical angles; first angle =  $45^{\circ}$ , second angle =  $\underline{\hspace{1cm}}^{\circ}$

13. 2 supplementary angles; first angle =  $41^{\circ}$ , second angle =  $\underline{\hspace{1cm}}^{\circ}$

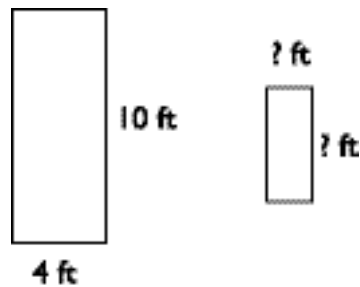
Name \_\_\_\_\_

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# Use Proportions to Draw Similar Figures



*If two figures are similar, a proportion can help you find the missing dimension.*



If the dimensions of the second rectangle are half those of the first rectangle, write a proportion to find the length or width.

To find the length:  $\frac{1}{2} = \frac{5}{10}$   $l = 5$       To find the width:  $\frac{1}{2} = \frac{2}{4}$   $w = 2$

**Directions:** Find the missing dimensions of these similar figures.

**a**

1.

**b**

1.

2.

**Directions:** Answer the following question.

3. There are two similar rectangles. The width of the larger triangle is 18 inches and the width of the smaller triangle is 2 inches. If the length of the smaller rectangle is 5 inches, what is the length of the larger rectangle?

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# Find Perimeters



*Perimeter is found by adding the lengths of the sides of a figure. Formulas can be used for regular polygons.*

Figure	Formula
Triangle	$P = 3 \times s(\text{side})$
Square	$P = 4 \times s$
Pentagon	$P = 5 \times s$
Hexagon	$P = 6 \times s$
Octagon	$P = 8 \times s$

*For an octagon with 7 inch sides,  $P = 8 \times 7 = 56$  inches.*

**Directions:** Find the perimeter of these figures.

1. An equilateral triangle with a 5 inch side.
2. An octagon with a 7 foot side.
3. A square with a 4 centimeter side.
4. A pentagon with an 8 yard side.
5. A hexagon with a 10 inch side.

**Directions:** Answer the following questions.

6. If a quadrilateral has a perimeter of 74 inches, what are the possible measurements of each of the sides?
7. Which has a larger perimeter, a square with 6 inch sides or an octagon with 3 inch sides?
8. If each of the sides of a pentagon are increased by 3 feet, how much will the perimeter increase?
9. To decrease the perimeter of a hexagon by 12 inches, how much shorter will each side be?

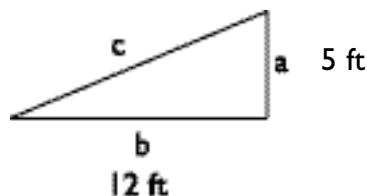
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# Use the Pythagorean Theorem



The lengths of the sides of a right triangle can be found by using the formula  $a^2 + b^2 = c^2$ .



$$5^2 + 12^2 = c^2 \quad 25 + 144 = c^2 \quad 169 = c^2$$

$c = 13$  feet since the square root of 169 is 13.

**Directions:** Find the missing lengths. Round to the nearest whole number where necessary.

**a**

**b**

1.  $a = 6$  yd    $b = 8$  yd    $c = \underline{\hspace{2cm}}$

$a = 15$  ft    $b = 20$  ft    $c = \underline{\hspace{2cm}}$

2.  $a = 12$  in    $b = \underline{\hspace{2cm}}$     $c = 13$  in

$a = 57$  yd    $b = 40$  yd    $c = \underline{\hspace{2cm}}$

3.  $a = \underline{\hspace{2cm}}$     $b = 15$  in    $c = 17$  in

$a = 30$  in    $b = \underline{\hspace{2cm}}$     $c = 50$  in

4.  $a = 5$  ft    $b = \underline{\hspace{2cm}}$     $c = 8$  ft

$a = 4$  yd    $b = 4$  yd    $c = \underline{\hspace{2cm}}$

5.  $a = 3$  ft    $b = 4$  ft    $c = \underline{\hspace{2cm}}$

$a = \underline{\hspace{2cm}}$     $b = 200$  cm    $c = 250$  cm

6.  $a = 30$  in    $b = 40$  in    $c = \underline{\hspace{2cm}}$

$a = 7$  ft    $b = \underline{\hspace{2cm}}$     $c = 25$  ft

7.  $a = 27$  ft    $b = 10$  ft    $c = \underline{\hspace{2cm}}$

$a = 2$  yd    $b = 7$  yd    $c = \underline{\hspace{2cm}}$

8.  $a = 10$  ft    $b = \underline{\hspace{2cm}}$     $c = 15$  ft

$a = 30$  km    $b = 40$  km    $c = \underline{\hspace{2cm}}$

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# Find Circumferences



*The distance around the outside of a circle is the circumference.*

Circumference is found by multiplying the diameter by 3.14, which is known as pi and is represented by the symbol  $\pi$ .

The formula is  $C = \pi D$ .

If the radius is given, circumference can be found by  $C = 2\pi r$ , since the diameter is twice the radius.

**Directions: Complete the table below.**

	$C$	$D$	$r$
1.		4 in	2 in
2.		6 ft	3 ft
3.	18.84 feet	6 ft	
4.		5 in	2.5 in
5.	28.26 m		4.5 m

**Directions: Answer the following questions.**

6. If the radius of a circle increases from 2 to 3 inches, how is the circumference changed?
7. The ratio of the circumferences of two circles is 2:3. If the radius of the smaller circle is 4 inches, what is the circumference of the larger circle?
8. Give an example to prove that pi has a value of about 3.14.
9. A semicircle has a radius of 5 inches. What is the circumference of the semicircle?

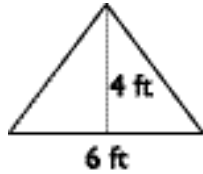
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# Find Areas of Triangles



The area of a triangle is found by using the formula  $A = \frac{1}{2} \text{ base} \times \text{height}$ .



$$A = \frac{1}{2} (6 \times 4) = 12 \text{ ft}^2$$

**Directions:** Find the missing information.

a

b

- |  |  |
|--|--|
| 1. B = 5 in    H = _____    A = 30 in <sup>2</sup> | B = 16 cm    H = 14 cm    A = _____              |
| 2. B = 2 ft    H = 8 ft    A = _____               | B = _____    H = 25 yd    A = 50 yd <sup>2</sup> |
| 3. B = 9 ft    H = _____    A = 72 ft <sup>2</sup> | B = 7 in    H = _____    A = 28 in <sup>2</sup>  |
| 4. B = 8 ft    H = _____    A = 40 ft <sup>2</sup> | B = 15 ft    H = 10 ft    A = _____              |
| 5. B = 18 cm    H = 12 cm    A = _____             | B = 12 cm    H = _____    A = 60 cm <sup>2</sup> |

**Directions:** Answer the following questions.

- How can the area of a triangle be doubled?
- Show a triangle with an area of 80 in<sup>2</sup>.
- What is the height of a triangle with an area of 32 square feet and a base of 4 feet?
- A rectangle has a width of 6 feet and a length of 8 feet. What is the area of each of the triangles formed by the diagonal?

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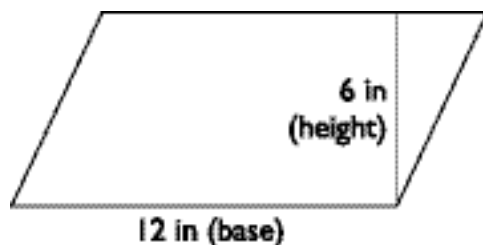
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# Find Areas of Parallelograms



The area of a parallelogram is found by using the formula  $A = \text{base} \times \text{height}$ .



$$A = 6 \times 12 = 72 \text{ in}^2$$

**Directions:** Fill in the missing information.

**a**

1.  $B = \underline{\hspace{1cm}}$  in     $H = 4$  in     $A = 72 \text{ in}^2$

2.  $B = 16$  cm     $H = 20$  cm     $A = \underline{\hspace{1cm}}$

3.  $B = 11$  in     $H = 10$  in     $A = \underline{\hspace{1cm}}$

4.  $B = 6$  ft     $H = \underline{\hspace{1cm}}$      $A = 48 \text{ ft}^2$

5.  $B = 15$  yd     $H = 13$  yd     $A = \underline{\hspace{1cm}}$

6.  $B = 4$  ft     $H = 7$  ft     $A = \underline{\hspace{1cm}}$

7.  $B = \underline{\hspace{1cm}}$      $H = 16$  yd     $A = 64 \text{ yd}^2$

8.  $B = 4$  m     $H = 5$  m     $A = \underline{\hspace{1cm}}$

**b**

$B = 7$  in     $H = 8$  in     $A = \underline{\hspace{1cm}}$

$B = 12$  ft     $H = \underline{\hspace{1cm}}$      $A = 84 \text{ ft}^2$

$B = 19$  cm     $H = 25$  cm     $A = \underline{\hspace{1cm}}$

$B = 3$  m     $H = 25$  m     $A = \underline{\hspace{1cm}}$

$B = \underline{\hspace{1cm}}$      $H = 9$  in     $A = 36 \text{ in}^2$

$B = 4$  in     $H = 12$  in     $A = \underline{\hspace{1cm}}$

$B = \underline{\hspace{1cm}}$      $H = 8$  m     $A = 32 \text{ m}^2$

$B = \underline{\hspace{1cm}}$      $H = 10$  yd     $A = 90 \text{ yd}^2$

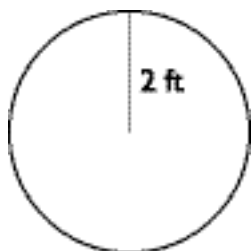
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# Find Areas of Circles



Use the formula  $A = r^2$  to find the area of a circle.



$$A = 3.14 \times 2^2 = 3.14 \times 4 = 12.56 \text{ ft}^2$$

**Directions:** Fill in the missing information.

**a**

**b**

1.  $r = 12 \text{ ft}$      $A = \underline{\hspace{2cm}}$                        $r = \underline{\hspace{2cm}}$      $r^2 = 9 \text{ in}$      $A = \underline{\hspace{2cm}}$

2.  $r = \underline{\hspace{2cm}}$      $A = 153.86 \text{ ft}^2$                        $r = 4 \text{ ft}$      $r^2 = \underline{\hspace{2cm}}$      $A = \underline{\hspace{2cm}}$

3.  $r = 8 \text{ in}$      $A = \underline{\hspace{2cm}}$                        $r = 4 \text{ m}$      $r^2 = \underline{\hspace{2cm}}$      $A = \underline{\hspace{2cm}}$

4.  $r = \underline{\hspace{2cm}}$      $A = 706.5 \text{ yd}^2$                        $r = \underline{\hspace{2cm}}$      $r^2 = 25 \text{ in}$      $A = \underline{\hspace{2cm}}$

5.  $r = 6 \text{ yd}$      $A = \underline{\hspace{2cm}}$                        $r = 8 \text{ m}$      $r^2 = \underline{\hspace{2cm}}$      $A = \underline{\hspace{2cm}}$

6.  $r = \underline{\hspace{2cm}}$      $A = 1,133.54 \text{ m}^2$                        $r = \underline{\hspace{2cm}}$      $r^2 = 1 \text{ in}$      $A = \underline{\hspace{2cm}}$

7.  $r = 9 \text{ cm}$      $A = \underline{\hspace{2cm}}$                        $r = 16 \text{ yd}$      $r^2 = \underline{\hspace{2cm}}$      $A = \underline{\hspace{2cm}}$

8.  $r = \underline{\hspace{2cm}}$      $A = 1256 \text{ ft}^2$                        $r = \underline{\hspace{2cm}}$      $r^2 = 36 \text{ ft}$      $A = \underline{\hspace{2cm}}$

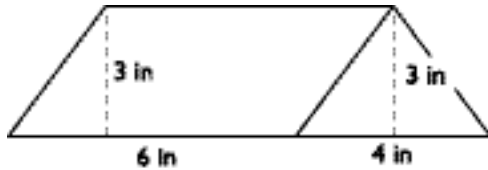
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# Find Areas of Irregular Figures



When finding the area of an irregular figure, find the area of each section and then add the areas together.

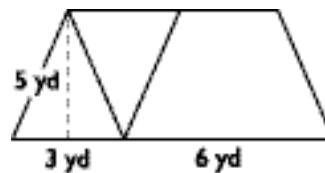
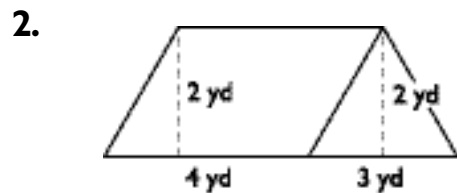
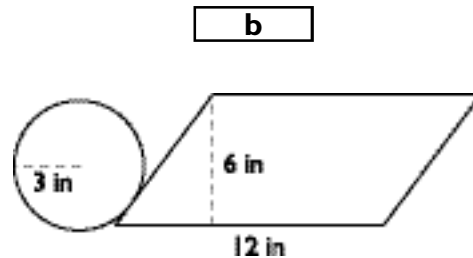
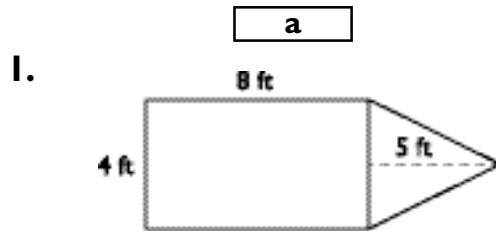


The area of the parallelogram is found by multiplying  
 $3 \times 6 = 18 \text{ in}^2$ .

The area of the triangle is found by multiplying  
 $\frac{1}{2} \times 3 \times 4 = 6 \text{ in}^2$ .

The area of the figure is  $18 + 6 = 24 \text{ in}^2$ .

**Directions: Find the area.**



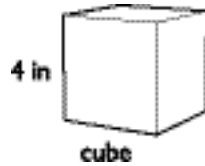
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# Find Surface Areas



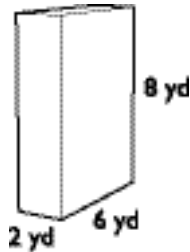
The surface area of a solid figure is the total area of the faces and bases of that figure.



To find the surface area of a cube, use the formula  $SA = s^2 \times 6$

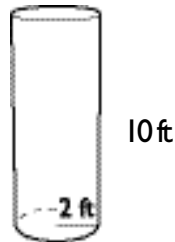
$$4^2 \times 6 = 96 \text{ in}^2$$

To find the surface area of a rectangular prism find the area of each side and then add.



top:	$2 \times 6 = 12 \text{ yd}^2$
bottom:	$2 \times 6 = 12 \text{ yd}^2$
front:	$2 \times 8 = 16 \text{ yd}^2$
back:	$2 \times 8 = 16 \text{ yd}^2$
side a	$6 \times 8 = 48 \text{ yd}^2$
side b	$6 \times 8 = 48 \text{ yd}^2$
total	$152 \text{ yd}^2$

To find the surface area of a cylinder, use the formula  
 $SA = 2 \times \text{area of the base} + \text{area of the side}$



$$SA = 2(\pi r^2) + (\pi Dh)$$

$$SA = 2(3.14 \times 4) + (3.14 \times 4 \times 10)$$

$$SA = 150.72 \text{ ft}^2$$

**Directions:** Find the surface area of these figures.

1. A cylinder with a 3 foot radius and a 6 foot height.
2. A cube with a 6 yard edge.
3. A cylinder with a 5 inch radius and a 7 inch height.

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# Find Volumes



*There are different formulas for finding the volumes of solid figures.  
Volume is measured in cubic units.*

## Formulas for Finding Volume

Figure	Formula
Cube	$V = s^3$
Pyramid	$V = 1/3 \times \text{area of base} \times \text{height}$
Cylinder	$V = r^2 h$
Rectangular Prism	$V = l \times w \times h$

**Directions:** Find the volume of the following figures.

a

### Rectangular Prisms

1.  $L = 5 \text{ in}$   $W = 6 \text{ in}$   $H = 7 \text{ in}$   $V = \underline{\hspace{2cm}}$

2.  $L = \underline{\hspace{2cm}}$   $W = 3 \text{ ft}$   $H = 4 \text{ ft}$   $V = 96 \text{ ft}^3$

### Pyramids

3.  $B = 3 \text{ ft}$   $H = 5 \text{ ft}$   $V = \underline{\hspace{2cm}}$

4.  $B = 6 \text{ m}$   $H = \underline{\hspace{2cm}}$   $V = 108 \text{ m}^3$

b

### Cylinders

$R = 6 \text{ cm}$   $H = 8 \text{ cm}$   $V = \underline{\hspace{2cm}}$

$R = 8 \text{ yd}$   $H = 4 \text{ yd}$   $V = \underline{\hspace{2cm}}$

### Cubes

$S = \underline{\hspace{2cm}}$   $V = 64 \text{ cm}^3$

$S = \underline{\hspace{2cm}}$   $V = 343 \text{ m}^3$

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# Solve Word Problems



*To solve some word problems it helps to draw a diagram, or picture, to show all the important information you will need.*

**Directions:** Solve the following problems. Show your work.

1. If Carla is painting the walls of her room that measures 15 feet long, 12 feet wide, and 8 feet high, what is the surface area she will be painting?
2. Phil has a cylinder that is 9 inches high with a diameter of 6 inches. He estimates the volume is about  $170 \text{ in}^3$ . Is Phil correct, and if not, what was his mistake?
3. A square has sides that are three times as long as the sides of a second square. If the area of the first square is  $324 \text{ cm}^2$ , what is the length of the sides of the second square?
4. Draw and label a hexagon and a pentagon that have the same perimeter.

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# Solve Word Problems



*Once you choose a method to solve a problem ask yourself if this method makes sense. If you can find a simpler way, use it!*

**Directions:** Solve the following problems. Show your work.

1. The length of a side of a rectangle is 6 inches. The corresponding side of a second similar rectangle has a length of 12 inches. If the area of the first rectangle is 48 inches, what is the area of the second rectangle?
  
2. If a square has 5 inch sides, how will tripling the length of the sides affect the area and the perimeter of the square?
  
3. A piece of lumber was leaning against the building and reached 5 feet up the side. If the base of the piece was 12 feet away from the building, how long was the piece of lumber?
  
4. During a dry period, Mary watered her lawn every day. She used a sprinkler head that spun in a circle and covered an area of  $314 \text{ ft}^2$ . What was the distance from the sprinkler head to one side of the circular area covered?
  
5. Jeff was wrapping a gift for his mother and wanted to cover a rectangular box that was 1 foot long, 8 inches wide, and 6 inches tall. How much wrapping paper will Jeff need to buy?

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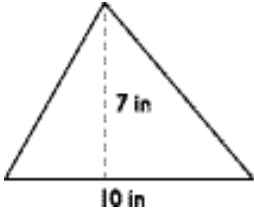
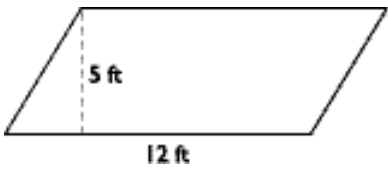
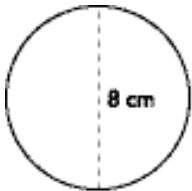
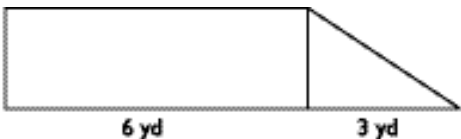
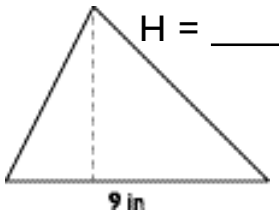
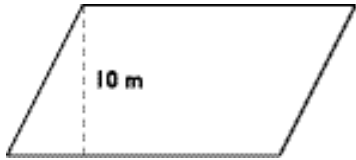
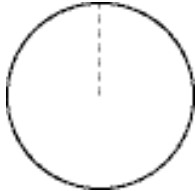
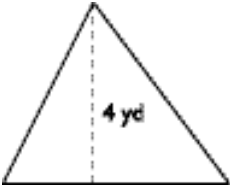
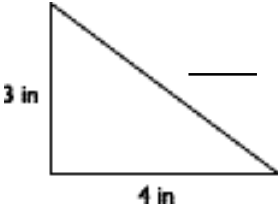


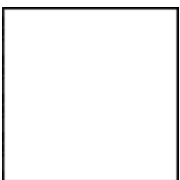
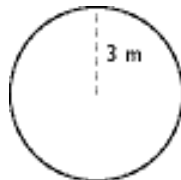
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# Review Geometry



*Now you know that geometry isn't so hard once you understand it.*

**Directions: Fill in the missing information.**

- |   |   |  |  |
|---|---|--|--|
| <p style="text-align: center; border: 1px solid black; width: fit-content; margin: 0 auto; padding: 2px 10px;"><b>a</b></p> <p>1. </p> <p style="margin-left: 40px;"><math>A = \underline{\hspace{2cm}}</math></p>   | <p style="text-align: center; border: 1px solid black; width: fit-content; margin: 0 auto; padding: 2px 10px;"><b>b</b></p> <p></p> <p style="margin-left: 40px;"><math>A = \underline{\hspace{2cm}}</math></p> | <p style="text-align: center; border: 1px solid black; width: fit-content; margin: 0 auto; padding: 2px 10px;"><b>c</b></p> <p></p> <p style="margin-left: 40px;"><math>A = \underline{\hspace{2cm}}</math></p> |  |
| <p>2. </p> <p style="margin-left: 40px;"><math>A = \underline{\hspace{2cm}}</math></p>   | <p></p> <p style="margin-left: 40px;"><math>A = 27 \text{ in}^2</math></p>   | <p></p> <p style="margin-left: 40px;"><math>B = \underline{\hspace{2cm}}</math></p> <p style="margin-left: 40px;"><math>A = 150 \text{ m}^2</math></p>  |  |
| <p>3. </p> <p style="margin-left: 40px;"><math>R = \underline{\hspace{2cm}}</math></p> <p style="margin-left: 40px;"><math>A = 50.24 \text{ cm}^2</math></p>   | <p></p> <p style="margin-left: 40px;"><math>B = \underline{\hspace{2cm}}</math></p> <p style="margin-left: 40px;"><math>A = 16 \text{ yd}^2</math></p>   | <p></p> <p style="margin-left: 40px;"><math>A = \underline{\hspace{2cm}}</math></p>   |  |
| <p>4. These rectangles have a proportion of 4:5.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="text-align: center; margin-right: 20px;">  </div> <div style="text-align: center; margin-right: 20px;">  </div> <div style="text-align: center;">  </div> </div> <div style="margin-top: 10px;"> <div style="margin-right: 40px;"><math>A = 81 \text{ in}^2</math></div> <div><math>P = \underline{\hspace{2cm}}</math></div> </div> |   |  | <p></p> <p style="margin-left: 40px;"><math>C = \underline{\hspace{2cm}}</math></p> |

Name \_\_\_\_\_

Date \_\_\_\_\_



# Review Geometry

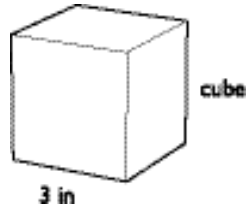


By now, there isn't a geometry problem that will stump you.

**Directions:** Fill in the missing information.

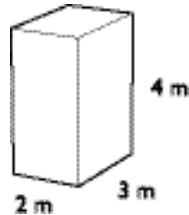
**a**

1.



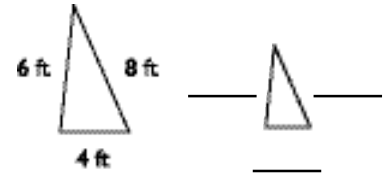
SA = \_\_\_\_

**b**



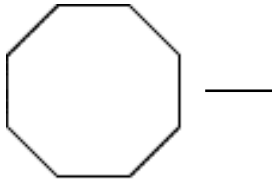
V = \_\_\_\_

**c**

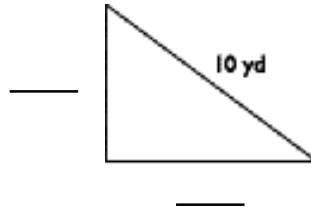


2:1

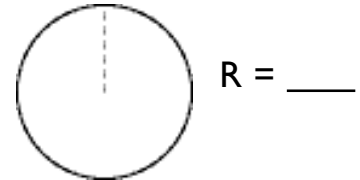
2.



P = 96 cm

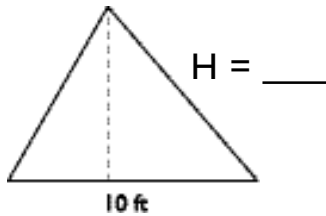


A = \_\_\_\_

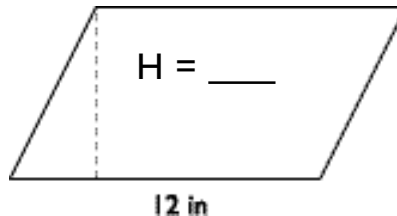


C = 25.12 in

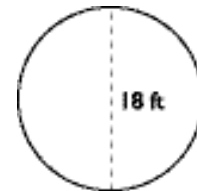
3.



A = 45 ft<sup>2</sup>

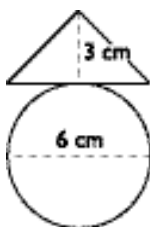


A = 60 in<sup>2</sup>

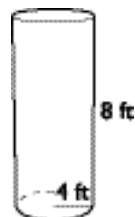


A = \_\_\_\_

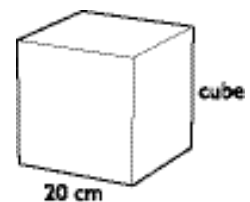
4.



A = \_\_\_\_



SA = \_\_\_\_



V = \_\_\_\_

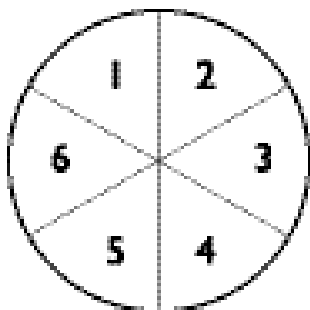
Name \_\_\_\_\_

Date \_\_\_\_\_

# Figure Probability



*Probability is the chance an event will happen.*



Probability may be expressed as a fraction.

There is a  $\frac{1}{6}$  chance the spinner will land on 3.

The probability of this event happening can also be expressed as “1 in 6.”

**Directions:** Express the probability as a fraction.

1. The names of the days of the week are written on cards and put into a bag. What is the probability of pulling a card with the day of the week starting with the letter T?
2. What is the probability of rolling an odd number on a die?
3. What is the probability of pulling a green marble out of a box containing 4 green marbles, 6 black marbles, and 8 blue marbles?
4. What is the probability that a student in a class with an equal number of boys and girls is a boy?
5. A letter from the word OCTAGON is chosen. What is the probability the letter is a vowel?
6. If a digit from the number 6,153 is chosen, what is the probability the digit is a prime number?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Likelihood of Events



*Events can be certain, impossible, likely, or unlikely. For each problem, you need to read the information carefully to tell the difference.*

Some events are impossible: Pulling a green marble from a bag containing only blue marbles is impossible.

Some events are certain: It is certain that the students in a class will be either boys or girls.

Some events are likely: Rolling a 6 on a die if it is tossed 50 times is likely to happen.

Some events are unlikely: feeling hungry after eating a big breakfast is unlikely.

---

**Directions:** Tell whether the event is certain, unlikely, impossible, or likely.

1. having a birthday in a month that has 35 days \_\_\_\_\_
2. picking a playing card with the number 20 from a deck \_\_\_\_\_
3. picking a red crayon from a box containing 2 red crayons and 10 blue crayons  
\_\_\_\_\_
4. the sum of two odd numbers being even \_\_\_\_\_
5. a student enrolling in college at an age younger than 16 \_\_\_\_\_
6. spinning a 4 on a spinner labeled with odd numbers \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

# Compound Probability



*When two events happen at the same time, multiply the probabilities of each event to find the compound probability.*

What is the probability of a die landing on a 4 and a coin landing on tails?

The probability of a die landing on 4 is  $\frac{1}{6}$ .

The probability of a coin landing on tails is  $\frac{1}{2}$ .

The probability of both events occurring is  $\frac{1}{6} \times \frac{1}{2} =$  or  $\frac{1}{12}$ .

---

**Directions:** Answer the following questions.

1. What is the probability of a spinner with equal sections numbered from 1 to 8 landing on an even number, and a die landing on an odd number?
2. What is the probability of picking a vowel (a, e, i, o, or u) from a set of alphabet blocks and then picking a consonant from another set of alphabet blocks?
3. There are 52 cards in a deck, with 4 each of 13 number and picture cards. What is the probability of picking a 7 and then rolling a number less than 3 on a die?
4. There are 3 dice tossed at the same time. What is the probability of each landing on 2 or 4?
5. A bowl contains 30 red jelly beans, 20 green jelly beans, and 30 purple jelly beans. Another bowl contains 5 chocolates, 8 peppermints, and 7 gum drops. What is the probability of picking a green jelly bean and a peppermint?

Name \_\_\_\_\_

Date \_\_\_\_\_

# Identify Mean, Median, and Mode



*A set of data can have a mean, a median and a mode. Each tells you something different about that group of numbers.*

28 32 36 42 48 48 53

The mode is the number occurring most often. The mode is 48.

To find the mean (average), add the numbers and divide the sum by the number of addends. The mean is 41.

The median is the number in the middle. The median number is 42.

If there are an even number of numbers, add the two middle numbers and divide by 2 to find the median.

---

**Directions:** Find the mean, median, and mode.

1. 1, 9, 200, 3
2. 19, 16, 23, 19, 18, 27, 21
3. 6, 9, 4, 9, 2,
4. 124, 100, 130, 124, 122
5. 84, 85, 87, 86, 13, 15, 16, 14
6. 100, 300, 150, 250, 170, 200
7. 58, 45, 172, 105
8. 123, 214, 319, 189, 546, 123, 214

Name \_\_\_\_\_

Date \_\_\_\_\_

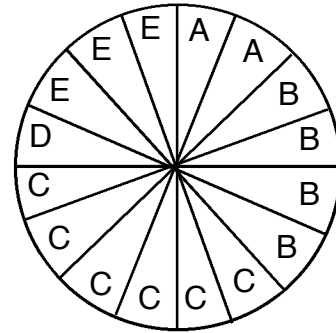
# Solve Word Problems



*To solve probability problems it helps to make an organized list. This way, you can see all the possible events.*

**Directions:** Answer the following questions.

1. What is the probability of the spinner landing on either A, B, or C?



2. What is the probability of the spinner **not** landing on D?

3. Explain why it is likely the spinner will land on B, C, or E.

4. Describe a situation where the compound probability would be nearly 0.

5. Draw a spinner such that each event is equally likely.

6. In the data set 34, 37, 42, 61, 75, how would the median change if the highest number was removed? Show your work.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Solve Word Problems



*When solving word problems, make sure you are not distracted by irrelevant information. Focus on the information you need.*

**Directions:** Answer the following questions.

1. What is the probability a spinner with 8 equal sections labeled 1 to 8 will land on a number less than or equal to 4?

2. Draw and label a spinner with six sections and describe a certain event, a likely event, and an impossible event, using it.

certain event \_\_\_\_\_

likely event \_\_\_\_\_

impossible event \_\_\_\_\_

3. Create a set data set containing at least 6 numbers with a mode of 15, a median of 12, and a mean of 16.

4. Explain why every data set has a median. Give an example.

5. Explain why the probability of naming a continent starting with the letter A is greater than 1 in 2.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Review Probability



*You certainly have come a long way. Finishing this book is quite an accomplishment!*

**Directions: Find the mean, median, and mode.**

**a**

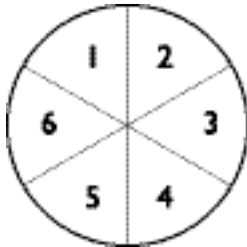
1. 100, 101, 100, 102, 100, 101
2. 18, 16, 0, 7, 12
3. 4, 50, 16, 50, 6, 5
4. 71, 74, 83, 84

**b**

- 71, 81, 94, 77
- 8, 13, 8, 7, 4
- 80, 79, 60, 80, 50, 55, 100, 72
- 90, 56, 40, 65, 40

**Directions: Find the probability.**

5.



What is the probability of the spinner landing on a number less than 4?

6. A jar contains 5 pennies, 3 nickels, 2 dimes, and 4 quarters. What is the probability of picking a dime?
7. There are 5 pairs of blue socks and 7 pairs of grey socks in a drawer. What is the probability of picking a grey pair?
8. A die is rolled. What is the probability of rolling an even number greater than 2?
9. What is the probability of rolling 3 dice and all three landing on a 1?

Name \_\_\_\_\_

Date \_\_\_\_\_



# Review Probability



*Congratulations! I hope this book has been helpful.*

**Directions:** Write *T* for *true* or *F* for *false*. If *false*, write the correct answer.

1. 10 must be added to 15, 25, and 30 to result in a mean of 30.
2. Probability cannot be greater than a 1 in 1 chance.
3. Every set of data has a mode.
4. If an event doesn't happen too often, it's impossible.
5. Some data sets don't have a mean.
6. The median and mode can be the same number.
7. Numbers must be arranged in order to find the mean.
8. To find the median of a set of data with an even amount of numbers, add the two middle numbers and divide by 2.
9. There is a 100% chance a certain event will happen.
10. Add the probability of each event to find compound probability.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Scope and Sequence

## Students

number sense pp. 6 - 27

sense pp. 6 - 27  
addition and subtraction pp. 28 - 43  
multiplication and division  
operations with

27  
and subtraction pp. 28 - 43  
multiplication and division pp. 44 - 69  
operations with fractions  
equations pp. 70 - 89

on pp. 28 - 43  
 operations and division pp. 44 - 69  
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Division pp. 44 - 69  
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 Equations pp. 86 - 98  
 Geometry and measurement  
 Data analysis

geometry and measurement pp. 99 - 105  
 data analysis and probability pp. 106 - 112

data analysis and probability pp. 129

[illegible]

# Answer Key

## PAGE 6

1. 3 5 7 10 9
2. 9 16 1 8 15
3. 15 20 2 6 13
4. 4 35 17 19 4
5. -7 +8 +175
6. +20 -6 -8
7. -6 -9 +302
8. +83 -202 =
9. -5 -403 +706

## PAGE 7

1. -204 5,672 4. -4,995 -35
2. -2,849 62 5. 495 -295
3. 4,342 -671 6. 1,632 61

## PAGE 8

1. -18, -16, +20, +22 -52, -50, -49, -48
2. -32, -19, +12, +16 -53, -52, -51, +20
3. -30, -25, +65, +73 -16, -13, +63, +74
4. -5, -4, -1, 0 0, +12, +35, +48
5. -92, -85, +69, +75 -45, -43, -42, -40
6. -55, -53, +54, +61 +25, +30, +58, +68
7. -100, -70, +70, +100 -66, -61, -59, -52
8. -88, -83, -79, -74 -20, -15, -8, +76
9. -29, -27, +260, +360 -83, -76, +22, +35
10. -46, -44, +10, +15 -30, -21, -4, +98
11. -6, -1, +93, +97 -77, -75, -73, 0

## PAGE 9

1. +4 +37 -100
2. +10 -70 +71
3. -20 +5 -110
4. +43 -85 +48
5. -3, -5, -7, -10 +84, +75, +72, +68
6. 18, 16, 12, 0 0, -30, -40, -60
7. -8, -9, -11, -17 +94, +93, +92, +91
8. +25, 0, -18, -25 +45, +28, -28, -45

Some answers will vary for items 9-10.

Example answers are listed below.

9. 6 1 2 10. 1 8 1

## PAGE 10

1. -90 -12,700 +146,240
2. +170 -83,260 +17,590
3. -2,340 +328,120 -50
4. +40 -80 +570
5. -490 +1,000 -2920
6. +5,670 -7,450 +38,130
7. +1,400 +123,800 -200
8. -400 +94,100 +9,800
9. +600 -6,100 -69,400
10. -21,700 +600 +329,400

## PAGE 11

1. Y N
2. N Y
3. Y N
4. N N
5. N N
6. Y Y

Some answers will vary for items 7-10.

Example answers are listed below.

7. 72 561 1,394
8. 432 7,774 33
9. 2,412 29,206 101
10. 36,587 79 1,111

## PAGE 12

1.  $2^3$   $9^3$   $30^3$   $19^2$
2.  $8^3$   $3^3$   $11^3$   $5^3$
3.  $50^3$   $40^3$   $5^3$   $29^3$
4.  $81^2$   $8^2$   $7^3$   $6^3$
5.  $< < > <$
6.  $< > < <$
7.  $< < < >$
8.  $> > < >$
9. 64 25 1,296 27
10. 49 512 32 81

## PAGE 13

1. 100 100,000,000 100,000
2. 10,000,000 1,000 10
3. 10,000,000,000 1,000,000,000 10,000
4. 0 100,000,000,000 1,000,000
5.  $> < >$
6.  $< > >$
7.  $< < <$
8.  $< > <$
9.  $10^3$   $10^7$   $10^{10}$
10.  $10^6$   $10^2$   $10^5$
11.  $10^8$   $10^{11}$   $10^4$

## PAGE 14

1. 165 56 5. 955 49
2. 604 4,154 6. 480 1,414
3. 90,000 4 7. 684 960
4. 2,385 601 8. 0 2,192

## PAGE 15

1. 5 3 16 9 7. F F F
2. 10 6 30 17 8. T T T
3. 19 20 7 18 9. T F F
4. 12 13 40 8 10. F F T
5. 2 11 15 25 11. F T F
6. F T T 12. F T T

## PAGE 16

1. N T W 6. T N W
2. T N N 7. W W N
3. W T N 8. N R T
4. R W W 9. N N R
5. N R N

## PAGE 17

1. R I R I 7. R R R R
2. R I I R 8. R R R R
3. R R R R 9. R R I R
4. I R I R 10. R R R I
5. R R R R 11. R I R R
6. R I I R

## PAGE 18

Example answers are listed below.

1. 6/10 4:14 12 to 16 8/18
2. 21/33 6 to 10 2/34 4 to 24
3. 16:24 4/18 32:38 8:6
4. 4 to 6 6:16 14 to 10 24/34
5. 8 to 20 10:24 8/10 10 to 26
6. 6:8 14 to 20 6:7 3 to 2
7. 8/10 16/22 3 to 8 3:4
8. 6/16 2:4 16 to 6 12/14
9. 4 to 26 8:30 20/22 2:10
10. 2:9 4 to 42 34:50 4:2

## PAGE 19

1. 18 5 180.2
2. 4 160 100
3. 105 7.2 225
4. 52 1,275 105
5. 275 50 190
6. 585 8 480
7. 15 4 50
8. 20 57 245
9. 1,120 385 1,440
10. 105 570 36
11. 63 540 30
12. 300 96 112

## PAGE 20

1. = < 7. > <
2. > > 8. = >
3. > < 9. = <
4. < = 10. > <
5. > < 11. < <
6. < > 12. > <

## PAGE 21

1. 0.4 1/2 0.1 0.2
2. 7/10 0.3 13/20 24/125
3. 0.5 3/5 0.5 0.2
4. 6/25 0.4 463/1000 21/50
5. 0.25 0.2 0.5 0.75
6. 0.375 0.667 311/1000 0.5

## PAGE 22

1. Y N Y 6. N N N
2. Y N Y 7. Y N N
3. N Y N 8. Y N Y
4. N Y Y 9. N Y Y
5. Y Y N 10. N N Y

## PAGE 23

1. 2/5 10% 6. 70% 0.25
2. 20% 11/20 7. 93% 46%
3. 0.21 4/25 8. 7/10 0.05
4. 0.44 0.125 9. 9/20 3/5
5. 1/5 80% 10. 0.03 30%

## PAGE 24

1. 34 questions
2. 43
3. Answers may vary. 1/2, 0.50, 50%
4. 8 cups
5. 15 students
6. 900 miles
7. Its decimal expansion neither repeats nor terminates.
8. 75% of 60
9. Answers may vary. 1/2
10. 42,000 ft

## PAGE 25

1.  $10^2$  and 100 are equal. Two zeros follow the 1.
2. Tuesday
3. \$7.84
4. Smithtown
5. No
6. 150 yards
7.  $87; |-87| = 87 > |62| = 62$
8. 108 miles
9. 18
10. No, the square root of 8 is not rational.

**PAGE 26**

- 10, -8, +5, +7, +9      -8, -5, -3, +6, +7
- 11, -10, -1, +15, +17      -22, -21, +25, +27
- 20, -19, +2, +15, +25      -20, -19, -18, +17
- 14, -12, +11, +13      -4, -3, 0, 1, 8
- P   P   N
- P   N   N
- P   P   P
- N   P   N
9. 10, 125      -46      868
10. 532      59,000      8
11. 90      4,131      121

**PAGE 27**

- 1/2   3/5   9/10
- 1/2   1/5   2/7
- 9/10   1/6   4/5
- Y   N   Y
- N   Y   Y
- \$40
- 16, 8
- Some answers will vary for item 8.  
Example answers are listed below.  
810, 790, 820, 780, 830

**PAGE 28**

- C   Z
- A   C
- Z   A
- Subtracting zero from a number does not change that number.
- Yes
- In division, the order and grouping of numbers affect the quotient and zero divided by anything is zero.
- Some answers will vary for items 7-9.  
Example answers are listed below.
- $2+4=4+2$
- $3+(6+8)=(3+6)+8$
- $1+0=0+1$

**PAGE 29**

- 1,276   1,263      5. 1,189   2,343
- 1,456   428      6. 1,555   685
- 742   1,020      7. 785   1,666
- 1,338   749      8. 1,322,   1,387

**PAGE 30**

- 2,650,959      3,932,178
- 5,039,777      641,532
- 2,669,135      1,519,313
- 3,892,824      4,385,888
- 8,299,577      3,823,258
- 4,021,211      10,333,287
- 7,351,001      6,469,739
- 5,787,168      4,245,751

**PAGE 31**

- 921.69      32.178
- 71.228      18.316
- 1,814.19      107.851
- 5.199      3.398
- 23,933.84      1,237,614.231
- 161.555      28,476,018
- 148,809.33      21.381
- 235.39      636.36

**PAGE 32**

- 2,280   3,849.734
- 11,397,619   517
- 33,259   15,352
- 1,689   1,959
- 16,064,275   46,837
- 9,757,080   2,401,918
- 1,763   2,341
- 41,714   6,014,505.19

**PAGE 33**

- =      6. <      11. <
- <      7. >      12. <
- <      8. <      13. <
- <      9. >      14. <
- >      10. >      15. <

**PAGE 34**

- 509   509      5. 222   224
- 103   66      6. 47   224
- 66   299      7. 157   224
- 66   288      8. 257   124

**PAGE 35**

- 1,060,647      2,545,889
- 6,887,584      3,801,585
- 6,159,320      1,186,149
- 5,147,300      5,355,554
- 4,226,280      4,572,122
- 3,204,261      2,885,354
- 2,282,241      1,971,126
- 432,420      580,802

**PAGE 36**

- 836.75      40.03
- 653.09      8.142
- 55.49      78.421
- 2.72      31.72
- 0.211      2.194
- 302.123      2.22
- 25.204      412.85
- 1.113      -3.74

**PAGE 37**

- 576   3,22,111      5. 366   2,691,313
- 366   134,556      6. 156   2,491,417
- 166   1,691,925      7. 66   2,245,411
- 16   2,692,109      8. 476   6,045,659

**PAGE 38**

- <      6. <      11. >
- <      7. <      12. >
- >      8. >      13. <
- >      9. <      14. <
- >      10. <      15. <

**PAGE 39**

- 61,511      60,522
- 110,989      1,553
- 15,530,644      658,885
- 7,339      787
- 1,793      113,234
- 3,115      333,088
- 128,850      11,339,613
- 533,067      127,513

**PAGE 40**

- 285,611 people
- According to the Associative Property, the way numbers are grouped for addition does not affect the sum.
- 50,387 miles
- 75,236; 74,737; and 112,073

**PAGE 41**

- 1,122,044      3. about 1,130,000
- 3,755,023      4. 400,000 people

**PAGE 42**

- 5,999,887      519,635
- 55.091      88,417
- 44,215      16,771,465
- 224,353      1065.212
- C      8. B
- D      9. A
- F      10. E

**PAGE 43**

- 3,767,887      82,628
- 578,196      2,387,189
- 144,062      628,403
- 939,873      264,827
- Y   N   172.83
- N   5,114,562   Y
- N   45,477   N   24,264
- Y   Y

Some answers will vary for items 9-10.  
Example answers are listed below.

- $5,288,793 + 4,394,356 = 5,508 - 3.932$
- $564,058 - 198.141$   
 $4,025,055 + 1,104,818$

**PAGE 44**

- 3,6,9,12,15,18   7,14,21,28,35,42
- 16,32,48,64,80,96   11,22,33,44,55,66
- 8,16,24,32,40,48   17,34,51,68,85,102
- 29,58,87,116,145,174  
50,100,150,200,250,300
- 2,4,6,8,10,12   31,62,93,124,155,186
- 14,28,42,56,70,84   13,26,39,52,65,78
- 20,40,60,80,100,120  
90,180,270,360,450,540
- 18,36,54,72,90,108  
24,48,72,96,120,144
- 10,20,30,40,50,60   15,30,45,60,75,90
- 21,42,63,84,105,126   9,18,27,36,45,54

**PAGE 45**

- 1,2,4   1,5,25
- 1,2,3,4,6,12  
1,2,3,4,6,8,9,12,16,18,24,36,48,72,144
- 1,2,4,5,10,20,25,50,100  
1,2,3,5,6,10,15,30
- 1,2,17,34   1,2,3,6,7,14,21,42
- 1,2,4,8,16,32  
1,2,3,5,6,10,15,25,30,50,75,150
- 1,2,4,8,16,32   1,2,5,9,15,45
- 1,2,4,17,34,68   1,2,31,62
- 1,2,5,10,11,22,55,110  
1,2,3,5,6,9,10,15,18,30,45,90
- 1,3,19,57   1,2,4,11,22,44
- 1,2,3,4,6,8,12,16,24,48   1,2,7,14

# Answer Key

## PAGE 46

1. composite	prime	composite
2. composite	prime	composite
3. prime	composite	prime
4. composite	composite	composite
5. composite	prime	composite
6. prime	composite	composite
7. composite	prime	composite
8. prime	prime	prime
9. prime	composite	prime

## PAGE 47

1. 2,898	4,158	1,612
2. 6,444	1,654	2,751
3. 596	2,814	2,052
4. 1,500	2,792	2,373
5. 3,696	1,250	4,840
6. 4,011	2,166	3,356
7. 3,420	3,304	2,388
8. 7,155	4,664	7,569

## PAGE 48

1. 11,907	10,062	11,784
2. 8,541	29,939	4,011
3. 15,744	36,162	8,268
4. 24,909	41,026	15,504
5. 36,036	43,712	38,545
6. 49,125	40,370	15,129
7. 64,176	39,330	23,484
8. 81,189	36,112	21,708

## PAGE 49

1. Y	7. Y
2. Y	8. N 133,194
3. N 80,794	9. Y
4. Y	10. N 39,930
5. N 221,760	11. Y
6. N 383,040	12. Y

## PAGE 50

1. < <	5. < <	9. < <
2. > <	6. < <	10. > <
3. < <	7. < >	11. > <
4. > >	8. < <	12. > >

## PAGE 51

1. 75,632,816	28,633,927
2. 50,179,764	25,907,350
3. 29,089,544	18,817,164
4. 12,362,956	58,906,368
5. 17,291,683	50,724,624
6. 24,548,265	38,180,048
7. 26,731,215	3,273,858
8. 24,550,533	14,971,688

## PAGE 52

1. 188,257,758	169,419,072
2. 298,953,471	196,481,248
3. 312,587,100	209,277,600
4. 335,004,358	255,048,209
5. 99,171,936	232,135,816
6. 135,888,991	199,019,821
7. 109,582,256	143,240,310
8. 9,746,496	302,504,125

## PAGE 53

1. 11,783.06	17,927,828.1
2. 1,981,779.2	61,556.7
3. 2,585,395.584	2,085
4. 29,696,852.78	146,904,876.16
5. 317,475.84	7,458,542
6. 317,810.536	25,811.32
7. 2,979,163.55	9,963.736
8. 258,761,087.01	20,393,890.02

## PAGE 54

1. 159.03	290,143.858
2. 89.52	380.253
3. 45,727.56	199,591.44
4. 1,601.45	641,623.41
5. 874.57	3,228.06
6. 20,859.62	3,959.23
7. 1,780.33	17,198.75
8. 28,867.66	4,836.41

## PAGE 55

1. 15,096,308	5,625
2. -241,196,850	-616,124
3. 49,047,091	-10,062,328
4. 928,840	1,682,292
5. -1,881,220	326,458,440
6. 25,728,318	5,744

## PAGE 56

1. 138	368	174.5
2. 65.57	204	87.88
3. 290.667	126.5	71.1667
4. 98.8	187.25	481.5
5. 17.11	64.1667	131.5
6. 92.22	30.65	28.667
7. 90.22	39.43	39.43
8. 103.6	460.5	20.875

## PAGE 57

1. Y	N 8,951 R2
2. Y	Y
3. N 2,407	N 18,821
4. N 8,586 R4	N 18,771 R5
5. Y	Y
6. N 37,840	N 6,243
7. N 9,612 R1	Y
8. N 8,427 R2	Y

## PAGE 58

1. < <	5. = >	9. < >
2. < <	6. > <	10. > >
3. < >	7. > <	11. > <
4. < >	8. > >	12. > <

## PAGE 59

1. < <	5. < >	9. < <
2. > <	6. < >	10. > >
3. > <	7. < <	11. < >
4. > >	8. < >	12. > <

## PAGE 60

1. -1,548	-11,864 R4	26,984
2. -1,806	-1,738 R15	-46,423
3. 246 R3	-514	108,428
4. -714	-162,807 R3	-256,441
5. -871	-438,708	-1,102 R26
6. -986 R11	-328,502	-48,422

## PAGE 61

1. 19,627 R8	120,531 R4
2. 202,536 R13	178,474 R23
3. 198,823 R14	36,207 R16
4. 206,312 R25	193,397 R8
5. 21,861 R38	39,394 R48
6. 47,686 R33	59,256 R69
7. 77,746 R18	92,132 R34
8. 121,619 R40	77,584 R67

## PAGE 62

1. 425.56	5,509.04
2. 370.36	326.87
3. 2,472.51	38,673.25
4. 975.68	147.64
5. 1,252.46	11,104.06
6. 170.50	70.81
7. 28,604.9	468.10
8. 431.39	40.06

## PAGE 63

1. 19	212	5. 3	22.6
2. 9.76	631.1	6. 8	700
3. 6	149	7. 5.03	20.54
4. 12.89	50.32	8. 45.05	128.2

## PAGE 64

1. 36	9
2. 4	2187
3. 4,096	64
4. 576	27
5. 5.36	3,125
6. 9	100

## PAGE 65

1. 341.675	5. 54,597.235
2. 534,365,154	6. 24,396,448
3. 103,240,172	7. 29,202,145
4. 202,663	8. 31,109.43

## PAGE 66

- 607,175 people
- 45,918 people
- 2,938 fans in each section  
4 fans in the 17th section
- Answers will vary.
- 2,716.4
- No Because  $52.3 \times 2 =$  about 100.  
A better estimate would be 1000.
- \$2,159.40

## PAGE 67

- approx. 73 years
- about 2,249
- 2 times: the first day and the 24th day
- 2,604,000 miles
- 2 ft is only divisible by itself and 1 and is even.

**PAGE 68**

- |                |              |
|----------------|--------------|
| 1. 10,983      | 31,878.8     |
| 2. 3,295.75    | 5,176.33     |
| 3. 21,443,730  | 9,111.05     |
| 4. 48,786,570  | 1,537.3      |
| 5. 425,996,296 | 4,058.60     |
| 6. 96,030.33   | 139,042.125  |
| 7. 59,075      | 1,437.07     |
| 8. 330.38      | 1,194,737.33 |

**PAGE 69**

- 1,2,4,5,10,20,25,50,100  
1,2,3,4,5,6,10,12,15,20,30,60
- 1,2,3,4,6,9,12,18,36  
1,2,4,5,8,10,16,20,40,80
- 1,2,3,4,6,10,15,25,30,50,75,150  
1,2,4,8,16,32,64
- 1,2,3,4,6,8,12,24,48  
1,5,7,25,35,175
- 1,2,3,5,6,9,10,15,18,30,45,90  
1,2,3,4,6,8,12,24
- P C C
- P C C
- C C P
- C P C
- C P C
- T
- F
- T
- F

**PAGE 70**

Answers will vary for items 1-4.  
Example answers are listed below.

- 8/18, 12/27 1/2, 3/6 4/6, 6/9
- 4/10, 2/5 3/4, 12/16 8/10, 12/15
- 12/14, 18/21 4/5, 64/80 3/4, 12/16
- 3/4, 9/12 2/4, 3/6 6/7, 24/28
- Y N 3/5
- Y N 1/2
- N 8/10 Y
- N 21/49 N 7/10

**PAGE 71**

- |              |              |
|--------------|--------------|
| 1. 2/3 7/10  | 6. 3/5 3/4   |
| 2. 2/3 4/5   | 7. 4/5 3/4   |
| 3. 4/5 11/15 | 8. 1/2 3/5   |
| 4. 1/2 2/3   | 9. 3/5 2/3   |
| 5. 3/4 3/4   | 10. 2/5 6/15 |

**PAGE 72**

- 53/80 43/60
- 7/12 23/24
- 13/14 337/504
- 31/40 3/4
- 5/6 163/180
- 9/10 4/5
- 11/12 35/36
- 11/15 6/7
- 23/60 9/10
- 97/140 11/25

**PAGE 73**

- |             |        |     |
|-------------|--------|-----|
| 1. 2/5      | 3/5    | 1/4 |
| 2. 2/7      | 1/3    | 1/2 |
| 3. 1/5      | 1/4    | 3/5 |
| 4. 2/15     | 3/5    | 1/3 |
| 5. 2/9      | 9/15   | 4/7 |
| 6. Y        | Y      |     |
| 7. N 7/12   | N 1/8  |     |
| 8. N 2/3    | N 1/6  |     |
| 9. Y        | Y      |     |
| 10. N 7/15  | N 5/22 |     |
| 11. N 11/16 | Y      |     |

**PAGE 74**

- |           |       |       |
|-----------|-------|-------|
| 1. 1/5    | 1/2   | 7/30  |
| 2. 1/4    | 47/66 | 31/60 |
| 3. 1/18   | 7/24  | 17/30 |
| 4. 0      | 3/13  | 23/40 |
| 5. 16/45  | 17/28 | 17/25 |
| 6. 1/3    | 1/6   | 31/60 |
| 7. 9/50   | 1/6   | 41/70 |
| 8. 4/15   | 11/20 | 1/2   |
| 9. 6/35   | 13/30 | 2/3   |
| 10. 13/40 | 17/65 | 1/170 |

**PAGE 75**

- |           |         |        |
|-----------|---------|--------|
| 1. 17/20  | -29/42  | 1/4    |
| 2. -1/15  | 1 17/28 | -11/16 |
| 3. 47/56  | -1/4    | 4/15   |
| 4. -1/15  | 1 5/9   | -5/12  |
| 5. 1 7/24 | 0       | 1 1/8  |
| 6. 2/15   | 2/9     | -5/24  |
| 7. 1      | -1 1/10 | 1 4/45 |
| 8. 1/6    | -3/8    | -1     |

**PAGE 76**

- |        |         |
|--------|---------|
| 1. > < | 6. < >  |
| 2. > > | 7. < >  |
| 3. > > | 8. > >  |
| 4. < < | 9. < <  |
| 5. < > | 10. < > |

**PAGE 77**

- |             |           |
|-------------|-----------|
| 1. 6 3/5    | 23 1/8    |
| 2. 14 7/12  | 39 1/18   |
| 3. 14 3/10  | 49 11/96  |
| 4. 15 29/45 | 54 29/56  |
| 5. 31 11/45 | 7 13/20   |
| 6. 42 3/7   | 13 7/16   |
| 7. 13 1/20  | 17 96/175 |
| 8. 23 23/27 | 17 5/8    |

**PAGE 78**

- |          |       |         |
|----------|-------|---------|
| 1. 1 1/4 | 1 1/2 | 7/15    |
| 2. 1/2   | 1 1/5 | 5/6     |
| 3. 1/4   | 1/27  | 20/21   |
| 4. 5/24  | 15/16 | 1 5/27  |
| 5. 1/9   | 1     | 1 4/21  |
| 6. 27/80 | 1     | 1 1/2   |
| 7. 16/49 | 6/7   | 7/9     |
| 8. 1/4   | 3/4   | 1 10/11 |

**PAGE 79**

- |            |           |
|------------|-----------|
| 1. 1 83/85 | 16/19     |
| 2. 1 23/24 | 1 109/117 |
| 3. 1 7/12  | 2 59/119  |
| 4. 19/96   | 5 5/6     |
| 5. 3 8/15  | 4 5/49    |
| 6. 1 15/29 | 2 27/38   |
| 7. 40/81   | 65/246    |
| 8. 351/536 | 99/175    |

**PAGE 80**

- |           |        |
|-----------|--------|
| 1. 2/15   | -9/10  |
| 2. -3/32  | -5/9   |
| 3. 8/27   | -12/35 |
| 4. 8/27   | 7/12   |
| 5. 1      | -15/49 |
| 6. -12/35 | -2/3   |

**PAGE 81**

- |            |           |          |
|------------|-----------|----------|
| 1. 1 4/5   | 162       | 4 4/5    |
| 2. 27      | 9         | 66 2/3   |
| 3. 7/144   | 768       | 750      |
| 4. 22 2/5  | 3,640 8/9 | 121 1/2  |
| 5. 6 2/3   | 65 1/3    | 170 2/3  |
| 6. 115 1/5 | 2,811 6/7 | 512      |
| 7. 41 2/3  | 270       | 2000 5/6 |
| 8. 857 1/2 | 71 3/7    | 1822 1/2 |

**PAGE 82**

- 17 1/2 miles
- 50 3/4 inches
- 1/3 hour longer
- 4 2/7 pies
- 48 bags

**PAGE 83**

- 8 1/4 inches
- \$0.24/ounce
- The quotient
- No, Janee spent more.
- Carlos spends the same amount of time on Math and Language Arts. Math, 45 mins; Social Studies, 60 mins; Science, 30 mins; Language Arts, 45 mins
- 35/72 of the people arrived

**PAGE 84**

- |               |            |
|---------------|------------|
| 1. Y          | N 5 1/5    |
| 2. Y          | N 8 71/90  |
| 3. N 7 2/15   | Y          |
| 4. N 3 7/24   | N 16 19/56 |
| 5. N 13 17/24 | N 4 19/36  |
| 6. > <        |            |
| 7. < <        |            |

**PAGE 85**

- |            |         |          |
|------------|---------|----------|
| 1. 1 53/72 | 1 3/5   | 1 1/6    |
| 2. -14 1/6 | 13/54   | 1 43/60  |
| 3. 3/28    | 9 17/18 | -13/15   |
| 4. 2 22/57 | 2 20/21 | 82       |
| 5. 1 13/14 | 165/256 | -6 33/35 |

Answers may vary for items 6-7.  
Example answers below.

- 10/16, 15/24, 20/32
- 3/6, 4/8
- 2/3 of \$60

# Answer Key

## PAGE 86

1. N 400
2. N 35
3. Y
4. N 25
5. N 72
6. N -2
7. Y
8. Y
9. Y
10. N -1

## PAGE 87

1.  $1/4x-5=2$
2.  $x-32=62$
3.  $500 \div x=25$
4.  $6x+4=52$
5.  $1/5(30-x)=2$
6.  $x^3+9=36$
7.  $5x=75$
8.  $89-x=38$
9.  $x \div 4=16$
10.  $200x=4$

## PAGE 88

1.  $y=210$
2.  $y=45$
3.  $L=25$
4.  $q=8$
5.  $y=125$
6.  $n=119$
- $z=13$
- $x=47$
- $f=46$
- $a=6$
- $c=108$
- $q=38$
- $z=20$
- $m=150$
- $m=90$
- $m=90$
- $c=3$
- $r=25$

## PAGE 89

1. Y
2. N  $q=7$
3. Y
4. N  $y=16$
5. Y
6. N  $m=3$
7. Y
8. N  $L=40$
9. Y
10. Y
11. N  $n=5$

## PAGE 90

1.  $b=18$
2.  $y=10$
3.  $z=-2.4$
4.  $w=5$
5.  $q=6.5$
6.  $m=2$
7.  $c=4$
8.  $s=1.1667$
9.  $d=12$
10.  $m=-4$
11.  $f=4$
- $x=10$
- $b=2$
- $q=2$
- $x=1.6$
- $n=8$
- $q=6$
- $f=8$
- $a=5$
- $n=21$
- $c=6$
- $q=7$

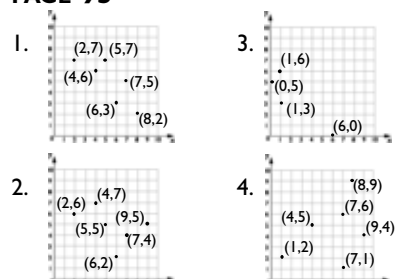
## PAGE 91

1.  $x=-5$
2.  $x=-3$
3.  $x=-2$
4.  $n=-2$
5.  $q=4$
6.  $d=7$
7.  $n=6$
- $x=-4$
- $x=3$
- $m=-7$
- $f=-4$
- $n=-5$
- $z=5$
- $a=3$

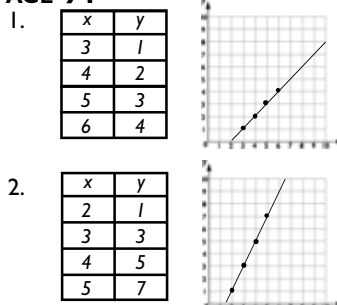
## PAGE 92

1.  $2x=y$
2.  $x^2=y$
3.  $x/2-1=y$
4.  $4x+2=y$
- $m/3=n$
- $m-4=n$
- $5m=n$
- $6m-1=n$

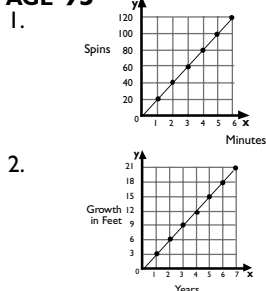
## PAGE 93



## PAGE 94



## PAGE 95



## PAGE 96

1. C
2. A
3. B
4. D

## PAGE 97

1. F -13
2. F  $(5 \times 7) + 16 = 6$
3. F 4.33
4. T
5. T
6. T
7. F 67
8. T
- F 173
- T
- F  $x=-0.75$
- T
- T
- F 900
- F 16
- F  $\sqrt{25} + 4 = m$

## PAGE 98

1.  $2x=y$
2. 14
3. See graph for points
4.  $y=x+2$  would be steeper
5.  $2y=8$   $y=4$
6.  $y>-6$
7. Answers will vary.

## PAGE 99

1. Finish: 4:27 pm
2. Start: 8:03 pm
3. 75 minutes
4. 2 hours 55 minutes
5. 16 hours 22 minutes
6. 9 hours
7. 6 hours 40 minutes
- 2 hours 50 minutes
- 5 hours 15 minutes
- 3 hours 50 minutes
- 17 hours 17 minutes
- 5 hours 58 minutes

## PAGE 100

1. 1:00 pm
2. 3:00 pm
3. No, 8:00 am L.A.  
11:00 am New York City
4. 2:30 pm
5. 11:00 am

## PAGE 101

1. -2.2
2. 194
3. -17.7
4. 248
5. 4.44
6. <
7. <
8. >
9. >
10. >
- 32
- 1.11
- 167
- 10
- 140
- >
- >
- >
- >
- >
- 15.5
- 176
- 18.33
- 113
- 35
- >
- >
- >
- >
- <

## PAGE 102

1. 4
2. 105
3. 3.3
4. 5.5
5. 12,600
6. 48 potatoes
7. 4 lbs 14 oz
8. 90 ounces > 5 1/2 lbs
9. 3,250 lbs = Average weight of each car.
10. 132 1/4 lbs
- 80
- 1.5
- 288
- 0.25
- 2.2
- 8000
- 4400
- 0.5
- 52
- 64,000

## PAGE 103

1. .02
2. 6,300
3. 27,000
4. 1,400,000
5. = <
6. > >
7. < =
8. < >
- 16,000
- 7,600
- 7.3
- 5,100,000
9. < >
10. > <
11. = =

## PAGE 104

1. 0.25
2. 5,443
3. 7,257
4. 13
5. 1,363
6. 3,629
7. 2
8. 142
9. 513
10. 2,041,155
- 25
- 4,536
- 2.2
- 3,470
- 211
- 6.6
- 11,340
- 28
- 31,298
- 11
- 5.5
- 907,185
- 313
- 145.5
- 3,175
- 44
- 1,814
- 9
- 21
- 4,536

## PAGE 105

1. - 4. Answers will vary.
5. No, acute angles are always less than 90°.
6. Right angles form square corners which are only 90°.
7. Straight angles all form a straight line which measures 180°.
8. A book cover is normally a rectangle which has four 90° angles
9. A triangle means it has three angles and a straight angle can only have one angle.
10. Answers will vary.

**PAGE 106**

- 65°
- 38°
- 105°
- No, adjacent angles always total 180°
- Yes, if all the angles are right angles (90°)
- No, complementary angles must add up to 90° and vertical angles don't.

**PAGE 107**

- < > =
- < > >
- < = >
- > < =
- = = >
- < < <
- > < <
- > > >
- > < =
- < = >

**PAGE 108**

- |          |      |            |        |
|----------|------|------------|--------|
| 1. 1.3   | 1.5  | 7. 6,900   | 1,750  |
| 2. 8     | 1    | 8. 40      | 34     |
| 3. 3,500 | 7,00 | 9. 2.9     | 400    |
| 4. 1,080 | 65   | 10. 3.2    | 16,000 |
| 5. 9     | 70   | 11. 5,000  | 10.5   |
| 6. 7     | 5.85 | 12. 10,000 | 2.4    |

**PAGE 109**

- |            |       |         |
|------------|-------|---------|
| 1. 41      | 21    | 8.7     |
| 2. 6       | 1.6   | 23      |
| 3. 8,047   | 2.5   | 1,312   |
| 4. 3.7     | 2.5   | 289.6   |
| 5. 5.5     | 108.3 | 39.4    |
| 6. 6,437.4 | 820   | 4,828   |
| 7. 61      | 118   | 1.9     |
| 8. 4       | 295.3 | 22.9    |
| 9. 14,484  | 6.2   | 18.3    |
| 10. 21     | 354.3 | 2,651.8 |
| 11. 4.3    | 71    | 3,218.7 |

**PAGE 110**

- |             |          |
|-------------|----------|
| 1. T        | F 167.32 |
| 2. F 196.85 | T        |
| 3. T        | T        |
| 4. F 9.84   | F 2992   |
| 5. T        | F 11.18  |
| 6. T        | F 73.23  |
| 7. F 19.69  | T        |
| 8. T        | F 9.94   |
| 9. F 393.7  | F 13.78  |

**PAGE 111**

- 1,802 miles
- 4,00 packets
- Answers will vary depending upon location. Example: Pacific= 11:30 am Central= 1:30 pm
- 932o F
- 30.5
- Answers will vary.
- 50.8 cm

**PAGE 112**

- The Easter time zone is 2 hours ahead of the mountain time zone. If you left at midnight and flew for 1 hour you could arrive at 11:00 pm local time.
- Air
- The one that receives 12.5 cm
- 11,265.4 km
- 11.34 kg
- Yes, 5,300ft=1,766 yd
- 43.2° F

**PAGE 113**

- T
- T
- T
- T
- F 5 Kg = 11.01 lbs
- T
- T
- T
- F 12 Km = 7.46 miles
- T
- F 100°C = 212°F
- F 12,000 = 0.012 Kg
- F 2 Tons = 1,814,369 grams
- F 5000 yd = 2.84 miles

**PAGE 114**

- |            |           |         |
|------------|-----------|---------|
| 1. 29.4    | 15.24     | 3,600   |
| 2. 5       | 1.96      | 450,000 |
| 3. 0.5     | 2.7       | 0.176   |
| 4. 2,045.7 | 266       | 1.2     |
| 5. 4.4     | 567.9     | 106.3   |
| 6. 1,800   | 15,840    | 17.2    |
| 7. 8       | 1,013,760 | 11.8    |
| 8. 4 36    |           |         |
| 9. 5 15    |           |         |
| 10. 20     |           |         |
| 11. 12 56  |           |         |
| 12. 45     |           |         |
| 13. 139    |           |         |

**PAGE 115**

- 12 ft, 4 ft      5 ft
- 5 in      20 cm
- 45 in

**PAGE 116**

- |             |                   |
|-------------|-------------------|
| 1. p=15 in  | 6. 18.5 in        |
| 2. p= 54 ft | 7. They are equal |
| 3. 16 cm    | 8. 15 feet        |
| 4. 360 yd   | 9. 72 in          |
| 5. 60 in    |                   |

**PAGE 117**

- |            |         |
|------------|---------|
| 1. 10 yd   | 25 ft   |
| 2. 5 in    | 69.6 yd |
| 3. 8 in    | 40 in   |
| 4. 6.24 ft | 5.7 yd  |
| 5. 5 ft    | 150 cm  |
| 6. 50 in   | 24 ft   |
| 7. 28.8 ft | 7.28 yd |
| 8. 11.2 ft | 50 km   |

**PAGE 118**

- 12.6 in
  - 37.70 ft
  - 3 ft
  - 15.71 in
  - 9 m
  - It increases by 6.2 in.
  - 37.7 in
- Answers will vary for item 8. Example answer below.
- Draw a circle with a diameter of 4 units. Use a string to measure the circumference.  $C=12.56$   $D=4$   
 $12.56 \div 4 = 3.14$
  - 15.7

**PAGE 119**

- |  |                     |
|--|---------------------|
| 1. 12 in                                     | 112 cm <sup>2</sup> |
| 2. 8 ft 2                                    | 4 yd                |
| 3. 16 ft                                     | 8 in                |
| 4. 10 ft                                     | 75 ft 2             |
| 5. 108 cm <sup>2</sup>                       | 10 cm               |
| 6. by doubling either the base or the height |                     |
| 7. B=8 H=20 A=80                             |                     |
| 8. H=16 ft                                   |                     |
| 9. A=24 ft                                   |                     |

**PAGE 120**

- |                        |                     |
|------------------------|---------------------|
| 1. 18 ft               | 56 in <sup>2</sup>  |
| 2. 320 cm <sup>2</sup> | 7                   |
| 3. 110 in <sup>2</sup> | 475 cm <sup>2</sup> |
| 4. 8 ft                | 75 m <sup>2</sup>   |
| 5. 195 yd <sup>2</sup> | 4 in                |
| 6. 32 ft <sup>2</sup>  | 480                 |
| 7. 4 yd                | 4 m                 |
| 8. 20 m <sup>2</sup>   | 9 yd                |

**PAGE 121**

- |                           |                                |
|---------------------------|--------------------------------|
| 1. 452.16 ft <sup>2</sup> | 3 in; 254.34 in <sup>2</sup>   |
| 2. 7 ft                   | 16 ft; 50.24 ft <sup>2</sup>   |
| 3. 200.96 in <sup>2</sup> | 16 m; 50.24 in <sup>2</sup>    |
| 4. 15 yd                  | 5 in; 78.5 in <sup>2</sup>     |
| 5. 113.04 yd <sup>2</sup> | 64 m; 200.96 m <sup>2</sup>    |
| 6. 19 m                   | 1 in; 3.14 m <sup>2</sup>      |
| 7. 254.34 cm <sup>2</sup> | 256 yd; 803.84 yd <sup>2</sup> |
| 8. 20 ft                  | 6 ft; 113.04 ft <sup>2</sup>   |

**PAGE 122**

- 42 ft<sup>2</sup> 100 in<sup>2</sup>
- 11 yd<sup>2</sup> 37.5 yd<sup>2</sup>

**PAGE 123**

- SA=169.56 ft<sup>2</sup>
- SA=216 yd<sup>2</sup>
- SA= 376.8 in<sup>2</sup>

**PAGE 124**

- 210 cm<sup>3</sup> 905 cm<sup>3</sup>
- 8 ft 804.25 yd<sup>3</sup>
- 5 ft<sup>3</sup> 4 cm
- 54 m 7 m

**PAGE 125**

- 432 ft<sup>2</sup>
- No, 254.47 in<sup>3</sup>
- 6 cm
- Answers will vary for item 4.



# Answer Key

## PAGE 126

1. 192 in
2. A=225 9 times bigger P=60  
3 times bigger
3. 13 ft
4. 10 ft
5. 432 in<sup>2</sup>

## PAGE 127

1. 35 60 50.27
2. 15 6 15
3. 4 8 5 A=6
4. 20 10 P=36 C=18.85

## PAGE 128

1. 54 in<sup>2</sup> 24 m<sup>3</sup> a=2 b=3 c=4
2. 12 cm a=6 b=8 A=24 yd<sup>2</sup> 28
3. 9 ft 5 in 254.47 ft<sup>2</sup>
4. 37.27 cm<sup>2</sup> 301.60 ft<sup>2</sup> 8000 cm<sup>3</sup>

## PAGE 129

1. 2/7
2. 3/6 or 1/2
3. 4/18 or 2/9
4. 1/2
5. 3/7
6. 3/4

## PAGE 130

1. Impossible
2. Impossible
3. Unlikely
4. Certain
5. Unlikely
6. Impossible

## PAGE 131

1. 1/4
2. 105/676
3. 1/39
4. 1/27
5. 1/10

## PAGE 132

mean, median, mode

1. 8.25, 6, no mode
2. 20.4, 19, 19
3. 6, 6, 9
4. 120, 124, 124
5. 50, 50, no mode
6. 195, 185, no mode
7. 95, 81.5, no mode
8. 247.86, 214, 123 and 214

## PAGE 133

1. 12/16 or 3/4
  2. 15/16
  3. B, C, and E have the most sections
- Answers will vary for items 4-5.
4. Example: Roll a di and get a 6, flip a coin and get heads, and draw the queen of spades in a standard playing deck.  $1/6 \times 1/2 \times 1/52 = 1/624$  or 0.00160
  5. Drawing should show a spinner divided into equal sections.
  6. Current median=42 Changed median= 39.5

## PAGE 134

1. 1/2
2. Answers will vary.
3. 8,9,10,11,12,15,15,30,34 mean=16, median=12, and mode=15
4. Either the data set has an odd amount of elements and the middle number is the median, or the middle two numbers are added and divided by 2 to get a median.
5. 4/7 Africa, Antarctica, Asia, Australia, Europe, North America, and South America

## PAGE 135

1. 100.667, 100.5, 100  
80.75 79
2. 10.6 12  
8 8 8
3. 21.83 11 50  
72 75.5 80
4. 78 78.5  
58.2 56 40
5. 3/6 or 1/2
6. 2/14 or 1/7
7. 7/12
8. 2/6
9. 1/216

## PAGE 136

1. F, If 10 were added the mean would be 20.
2. T
3. F
4. F, it is unlikely
5. F, All data sets have a mean.
6. T
7. F, They just must be added together and then divided by the number of data in the set.
8. T
9. T
10. F, Multiply to find the compound probability.

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